

DRAGON



USER

The independent Dragon magazine

October 1986

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Editorial

Last month's bargain card's have been stripped as it goes out, and dealers with cheap hardware report that it's going fast. We have so many questions to answer that we're running a page of Communications this month. New subscriptions are still flowing in, and we get plenty of suggestions as well.

Sometimes we can pull out of the hat the very article which scores of readers have been requesting; sometimes we can't but we keep trying. We would like to do that round up of printers, but we won't publish anything which hasn't been received by a Dragon User — so if you have recently installed a new printer, get in touch. You may be able to help us.

Do you write? As well as original ideas from contributors, we often have a pile of suggestions looking for a reader-writer. Tell me who you are and what you can do, and I'll send you the next requests list.

I'll be writing aside a page for programming tips soon, so we want to hear from anyone who thinks their solution is neater and more elegant (or just more useful) than the run of the mill. This month planning and designing as well as routines. The Dragon Can Do, so tell us what it's doing for you.

How to submit articles

The quality of the material we can publish in Dragon User each month will, to a very great extent depend on the quality of the discussions that you can make with your Dragon. The Dragon Computer was launched on to the market with a powerful version of Basic, but with very poor documentation.

Articles which are submitted to Dragon User for publication should not be more than 2000 words long. All submissions should be typed. Please leave wide margins and a double space between each line. Programs should, whenever possible, be compactly printed on plain white paper and be accompanied by a tape or the program.

We cannot guarantee to return every submitted article or program, so please keep a copy. If you want to have your program enhanced you should include a stamped addressed envelope.

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Letters

Seeing is deleting

I HAD discovered that the Dragon in BASIC mode leaves the rest of the text in the cursor position whenever you hit the T-key and get into INPUT-mode.

This gives you the facility of deleting unwanted characters by using the left arrow key instead of counting in characters for ED. You simply move the cursor to the first character you wish to delete, after the characters to be deleted, then enter INPUT mode and finally hit the left arrow key until the first character to be removed is reached. This gives you visible control of what you're deleting.

Tommy Grand
Hastings-on-Hudson 105
New York 10511

Attorney

Line feed switch

MY interest was aroused by "New Line" in Dragon Answer, August 1980. The Basicsoft GPF2000, Mark 2, which I used, has four small switches inside the cover. When the power leaves the battery, all four switches are in the OFF position. The third switch controls line feed, and is put in the OFF position to poison line feed. This is clearly set in the owner's manual, and mentioned in an article in Our July 1980, page 17.

John Bracey
29 Albany House
Bolton
Lancs BL2 8QH

FC error found

THEIR interesting quide-like using information from our own article and reading it to be correct... I was getting up a number POKER value in BASIC programs for use in a machine code routine as per the techniques on page 21 of the March 1980 DUL and four values larger than 25600 an FC error occurs

when using the 25600 technique at the top of the page. For unsigned double byte values that may exceed 25600, the least significant byte of, say variable M can be obtained by:

POKE P2+1, IN-(IN1
(25600)-256)

Signed values -1 to -25600

will suffer a similar loss so:

POKE P2+1, IN-(IN1)resigned one

will be needed. This was the technique I had always used until arriving at the shorter XMO 250 statement!

Peter Doherty
21 Wycombe Lane
Moorhouse Green
High Wycombe

Ideas for Israel?

I AM the head manager of the Israeli Dragon Users Club. Our club is a small club, we wanted to form an adult club, but there is no such club in Israel, so we decided to build our own club. We would like to hear from our Dragon users with ideas on how to run a club.

Barney Siegel
Atmos 1107
Kfar-Saba 44400
Israel

Helpful sounds

IN THE course of writing some simple BASIC programs for children with mental handicaps, a recurring problem was the inability to read instructions on the screen by children who were not able to follow verbal instructions. Assistance was found in recording the instructions verbally on the tape directly after the program, then the speech with a response. Then all that is needed is a MOTOR ON/AUDIO ON command in the programs, followed by a suitable pause, provided by the Dragon's inbuilt pause or a four-line loop. After some experimentation the lengths of the loops were adjusted as follows:

1 to 10800 = 3 seconds, 1 to 25600 = 8 seconds, 1 to 10800 = 10 seconds, 1 to 10800 = 15 seconds, 1 to 14199 = 20 seconds, 1 to 20800 = 25 seconds.

1 to 20800 = 30 seconds.

If an inlayloop must be used if the times has already been set as part of the program. If the pause is set slightly longer than the instruction then the MOTOR OFF/AUDIO OFF command can be followed by a tone to indicate when to start the game (just like those mobile telephones answering machines). Of course, remember to switch off the "play" button on the recorder would be a good idea as well.

Using this method, perhaps some "real" soundtracks can be incorporated into games (without the pauses). I rigged a cassette with a continuous loop to play some recorded gathering voices for a Hansel-and-Gretel-like atmosphere for acting scenes. Music or speech in programs are only limited by the length of the cassette tape using this method, unless a continuous loop is rigged in a separate cassette.

Stuart Brember
7 West Avenue
Abingdon
Oxon
Oxfordshire OX14 4PS
Great Britain

Elusive computer

IN THE editorial from September 1980 you mentioned that Eurohard were trying to produce a 128K Dragon with fixed disks and Plus. Do you have any more information? Also, way back in July 1980 OEG brought out a new Dragon, called the Professional, and a couple of people were advertising it for £995 inc. VAT. When I saw Computerworld last year they told me the Professional never made it to the open market. Is this true or is there any chance of obtaining one?

C. Bailey
9 Drycote House
Birch Hill Lane
Longsight
Manchester

EUROHARD have not produced any new models that we know of in the last twelve months; the only effective way of getting a 128K Dragon is with a hardware add-on. The

old pictures of the Professional many months ago, tell we never saw a box up. If any did make it on the market, they will be in private hands by now. Does anyone know more about the Professional?

Lack of data

IN THE August edition you featured "Screen Designer" by Dennis Riley. An interesting and rewarding program. There was one snag, however. Those of us who do not possess an Atmel assembler had to use POKER in the data found that the "Testing Screen" featured in Listing 4 would not work because of insufficient data.

On close-close examination I find that the following appears to have been omitted:

D68000 C0 03 20 00 00 00
D68000 C0 03 20 00 00 00
D68000
D68000 82 91 02 00 00 00

In the main assembler listing 225 line items appear to have been lost:

70800 32

702472

I wish you and Dragon User every success and I hope that you obtain the support you deserve, not only more subscribers, but from advertisers as well.

Ray Smith
81 West Road
Merton
Surrey CR4 4QZ

Change of address

THANK YOU for publishing my article for the Teachersoft Graphics tablet. As I have moved, the address in the article is no longer correct.

For those who are interested, I have saved my programs from Dragon user at the original price of £3.00 each. These include the microprocessor/plotter tape, machine code monitor, Grafton and the graphics tablet programs.

Peter Whitaker
102 Ufford Road
Merton
Surrey CR4 4QZ

Cult status

MANI! Thanks for your mention in the August edition of DU of the efforts I and my colleagues put into the *Dragon* shown off the amateur radio scene.

Comments made in DU about the *Dragon* being almost a 'cult' not amongst ham are certainly true. I have come to rely on my three *Dragon*s quite considerably in my amateur radio activities as have others I know of. Some time ago DU carried a letter from an amateur about the very large group of Hamvention attendees in the Derby area, who regularly every Saturday operate on a frequency of 144.525 MHz FM with news, graphics and general data being sent all over the place, well, they are still going strong and I hope, continuing to the next issue of DU.

Keep up the good work, incidentally, we have already had several enquiries from ham clubs in South Africa, as a result of the August issue. Did you know that Remmels Average Joes Design Design was written by Sam? If you think that has all come out of the blue, have a look at the American Co-Go mag, Rain-

bow. Over the last three years virtually every edition carries articles and programs pertaining to amateur radio applications. Knowing something about electronics, you see, we all know that the *Dragon* is superior to the 265, and all the rest. That is why we bought ten, not to play games.

Finally, taking of Rainbow, an ad. appeared in there some years ago for an add on board (with 256) to enable the Co-Go to run DPM8000 interesting eh? P.J. Ward 052287 7 Penney Avenue Wistaston, Leicester LE9 2UO

Sulking designer

I THANK you for publishing my program "SCREEN DESIGNER" in the August edition; however, an error has been pointed out to me that will cause the program to "Hang DU" or "exit" during Options. It's a programme title of 8 characters I used.

This is because of the program, instead of being sent to the ROM port (portnumber\$H4000), it is sent to the routine CR\$LINK.

and therefore because of the following instruction, it cannot meet the condition to allow the program to continue.

To rectify this then, in the Machine Code Data listing \$H00E7 should be 100 and \$H00F0 should be 00. The Assembler listing should read:

R000 \$D0000000H00E7 00R000

I apologise for any confusion and inconvenience this may have caused.

May I also through this page extend my apologies to anyone who has written a copy of this program, or a reply, due to my spending a lot of time away during the August/September period.

Deon Riley
21 Cossens Road
Worley
Lancs. PR9 1QH

Random numbers

OVER the past couple of months a lot has been said about random numbers, mostly in the competition. Very little information is provided in the manual about using RND; however, I recently came across a 16 bit random number generator in a machine language package. My first question was, why not use a ROM call to the RND function, my second was (why does the Basic RND function work?).

The first answer was easy. The Basic RND function returns a random number in the Floating Point Accumulator as a real number (hence in theory it can have any value 0.01 to 1.00). This is naturally not suitable in machine code except by using the INT/INTV routines in Basic (B8-B9B2).

The second answer was more interesting. From what I gleaned from the ROM the RND function seems to be based on a 32-bit random number generator linked with Floating Point mathematics. For some time I have used "RND (-1-TIMER)" to generate the RND function for games programs, etc., without knowing why it worked. Looking at the RND function it becomes ob-

vious that this has three separate functions.

In the manual RND is said to return a number between 1 and the number specified. In actual fact RND(X) gives a whole random number between 1 and X if X is greater than 0, a fractional random number between 0 and 1 if X is 0 and if X is greater than 0 the value of the new seed (this will also be between 1 and X) is generated from a function of the number H88884887.

This means that a set sequence of random numbers can be repeatedly reproduced by using the same seed, without having to save them in memory and could be useful for statistical studies.

10 A\$RND(-100) PCP00000000H88884887

This program will always produce the same sequence as the same seed is generated each time.

Since a program will never run at exactly the same time after the computer has been turned on, the value of TIMER will be effectively random. By setting the RND function with the value of TIMER will guarantee a different sequence each time.

A common suggestion for scrambling the RND function is based on the fact for a key basis. It becomes obvious that this merely shifts the sequence to memory places along.

To truly randomise RND the only solution is to use RND(-1-TIMER).

Patricia Tolman
7 Clysden Street
Sale
Cheshire

Bridging a gap

I have a Dragon 32 and a bridge master I inserted the cartridge before switching on the computer, and wiped the contents of the cartridge off. The slot which supplied the cartridge did not move any more. The receiver of Dragon Data Ltd. could not help me.

On David J. Lewis
91 Mayville Park
Bolton
BL7 5LP

Routine solution

In response to David Carter's request (DU, August '88), I have developed a few COLUMNS in BASIC programs and the addresses of the earlier READ/WRITE routines, and have them as:

0058	number of active (PHV1)
0059-006F	buffer address for sector read/write
0069	threshold-decrement (0000) in each PHQ when reaches zero — turn off the disk motors.
006A	VERIFY flag 0=off, nonzero=on.
006A	PHV1 number
0067-0068	AUTOCOUNT line number.
0068-006A	AUTOCOUNT increment.
0069	AUTOCOUNT 0=off, nonzero=on.
006C-0080	ERRHON (RCIO line number).
0080	ERRHON (RCIO flag 0=off, nonzero=on).
008F-00A0	ISPA.
00A1	ISPA.
00A2	sector read routine.
00A3	sector write routine.

EMTPY for both routines: L1H1=mask, L1L0 = SECTOR - 1, Q0E8 and Q0E9 are the relevant values before calling these routines.

After using these routines, remember to P0H6 (nonzero value to location 0069), because if you don't, the motor won't stop (it is stopped only when the location REACHES zero, not when it is already at zero).

Danny Heleman
Dphs00000
Dphs1

News desk

User Group

THE National Dragon Users Group tell us that their monthly newsletter Dragon Update is up to its 20th issue, and that their membership is increasing steadily since they formed in 1984. In combat rumours that the Dragon was dead...

The NDUG has members overseas as well as in the UK, and encourages other newsletters to reprint their articles and reviews. Dragon Update prints reviews, news, practical information about software and hardware, and readers' programs. "Anytime in the group is

likely to be picked off at any time to do just about anything so ... we try to balance things so that we cover all Dragon related interests, so that there is something for everyone ... the subscription covers only associate costs such as printing, postage, phone calls etc."

Subscriptions are £8 annually, £5 overseas, from Paul Davis (Chairman), 5 Navarre Road, Worthing, Sussex. NDUG is usually represented at national computer shows, so look for them next time.

Disc editing utility

PARADIGMOS have produced a new utility for editing machine code programs. Scourmarker determines memory to DragonOSBasic in the form of DOKSRM401. Source Code Data File, which can then be loaded into DOKSRM401 for subsequent editing and reassembly. Instead, says Paul D'Arcy, for tailoring the lines of the hex dumps which appear in DLI to one's own system and personalisation. It is also helpful in editing software, particularly in changing from cassettes to a disc based system, where sup-

port is not available from the Scourmarker with User Guide and a Master and Work discs is available at £19.00 incstd, credit clearance, all inclusive, and as a cassette based system shortly at the same price. This version will work in conjunction with all the DREAM packages (ALLDREAM cartridge, cassette, DataDOS, DREAM cassette, DREAM and DREAM BASIC cassette).

Orders and enquiries to Paradigmos, 18A, 21 Mycombe Lane, Mycombe Green, High Wycombe, Berks HP10 0HD.

0808 295 7000. Tel (0808) 700 295.

PARSOFT tell Dragon User that they have assumed supplies of Dragon power supplies and individual transformations. Says Harry Whitehouse: "There has been a shortage of the original product for some time. As a result, we commissioned the design and manufacture of a new, heavy duty replacement. As a service to the Dragon community which has supported us to the best part four years, we will offer a 50% discount, in order that everyone can keep their Dragon in action." The complete power supply costs £18.95, with a two year guarantee. For information contact Parsoft at 48 Queen St, Bideford, Devon, Notts.

If you have any new products for the Dragon — software or hardware — ring the News Desk on 01-407 4043.

Dragon dance

MARSHAL, the software house which produced Marimba and Solitaire last year, have three new packages on the market.

"Maderlings of Oz" is an adventure which begins in a deep pit where a hapless adventurer is imprisoned in an iron cage. You must rescue him and guide him to the surface. The game uses colour and lower case text, 65 locations and 105 words, and can be saved. The price is £3.95.

"Decimation" is a ten-game competition for one to five players, including Asterian, Hangman, Shootout, Spiders, etc. The games are designed

to suit people of different abilities and are good for parties, claim the makers. The price is again £3.95.

Something a little different for the music buff, "accurately transcribed" four part harmony renditions of music by Bach and Scott Joplin, which can be played through the Dragon using its own sound capabilities, and saved through a slot in the user system. The Bach and Joplin tapes cost £3.95 each, £6.95 the set.

Unbiased enquiries to Marshal, Birchmore Cottage, Alnwick Lane, Prestwood, Great Missenden, Bucks HP10 0QD.

review of DST soon. When ordering, please state which version of DragonOS5 you are using, and attach your name and address separately to both your order and your postal order.

Order and enquiries to David Knechtel, Arnold 19/19th Sts, S. 5500 Remscheid, West Germany.

Show releases

BLAZIN COMPUTER Games have added a new machine game to the three new releases (plus BlasterCheat and Simplex of Doom) which are releasing at the Dragon Computer Show in Cardiff in October. Information about the show from John Potts computing@vixen (0800) 30975. "And anything else we have finished at the time" says John Potts.

Blazin also have a cache of check-in/return working Dragonsoft software. They will be bringing their show in London (November) and Cardiff (December) as well.

Even cheaper

PROGFS, computer users, who last month put a collection of working and non-working Dragon 32s up for sale at their north London warehouse, report that the units have been selling well, and that they are raising the price of the non-working, assessable units still further £10 each.

The warehouse is at the Haybridge Estate Castle Road, Camden Town, London NW1, for information and (please credit card) sales phone (01) 382 8211.

Knechtel Knews

ARMED KNECHTEL Software are introducing a new pre-paid method of payment for their Disk Support Tool (DST) package on disk. The price is £10.00 inc. postage and packing. Payment can now be made by postal order (cheques not entirely clear whether this includes cheques and money orders). If sending a Post Office order, it should be postdated (or postmarked) instead of direct transfer.

We hope to be printing a

Dragon date

OWING to the change in distribution, Dragon User will now be delivered in the last week of the month prior to the cover date.

Next issue — Page 9

Dragon User People's Chart

DALLAS, Texas is the multi-story offices of Irving Oil, with shoulders. Personal Computers glide silently between walls, gleaming executive desks across wide expanse of whispering carpet. In the panelled suite occupied by J. R. Ewing, J.R. himself lies down hard upon a wide cigar as he peruses a file deposited by one of these creatures.

"Whaddya mean, takeover bid? Who in hell is this Wintersoft, anyway? Part of ICI? Goddamit!"

"Sir," begins the voice. "The latest report has just arrived. Finance are concerned that Mineralsoft may be in a stronger position than we imagined."

"Like what?"

"Well, sir... Juxtaposition... Stars of Dent V has topped the Dragon User People's Chart for the third month..."

At this point J.R. bites his cigar in half. J.R.'s nerves will be jangled and further by Mr Robert Glassman of Dorset, who boldly states "Save feet, get a Dragon, it's energy for me". Mr Glassman wins our program contest.

Yes, for one can win £25-worth of software from Microdeal if you can devise an interestingly witty reference from the letters in some of those in the titles of your favourite three Dragon software packages. To do this, of course, you have to be your inventiveness - live, in fact, on that form to your right for today is and send them to us. It's a gift!

Results September 1986

1 Juxtaposition.....	(Wintersoft)
2 Shock Trooper.....	(Microdeal)
3 Total Eclipse.....	(Eclipse Fenmar)
4 Moon Cresta.....	(Incentive)
5 Syzygy.....	(Microdeal)

Chart Eight

Vol 8 No 8 (October 1986) Entries received after that time will not be eligible for inclusion in that month's listing. The editor's decision is final. Only one entry per individual per month will be allowed.

My top 5: Voting Month 7

1
2
3
4
5

Name

Address

My phrase is:

Dragonsoft

Fifty and out...

Program: Cassette 50.
Supplier: Cascade Games, 833 Mayers Crescent, Hartsdale, NY, USA.

Price: £19.95

With the cassette came out many years ago, I remember thinking to myself, "I can't be? 50 games on one cassette? They must all be atrocious!" Through time though, I followed and gained a different view of humanity. I felt that maybe humanity was inherently good, maybe the cassette has some good stuff on it.

A few months later saw me buying the "Religious" Cassette 50.

I loaded home, set up Dragon (my computer) and loaded the first game. Mine own. It wasn't very good. In fact it was written in BASIC and didn't really look very nice, in fact it was useful. But we did I

care... it still had 48 games to go.

I loaded the second game, Galactic Attack. I wasn't really very good, in fact it was written in BASIC and didn't really look very nice. In fact it was useful, but what did I care... I still had 47 games to go!

Three hours later I loaded the last game, Exchange. It wasn't really very good, etc.

I was not a happy person. Dugby and myself had had a grand time loading fifty totally useless games.

All the games were in BASIC, although some were not in Dragon BASIC — one of the games would not run as it was written in ZX-81 BASIC.

No attempt whatsoever was made at text formatting so the games looked as bad as they played!

May I congratulate Cascade Software on producing some on two but fifty employable games.

Jason Orbaum

Justified writer

Program: Electronic Author-Supplier: Smithson Computing Price: £14.95 cassette, £19.95 disk

This review is like no other I have ever written, for it was written on a new and better word-processor than the old Textewriter. Yes, sure, Textewriter is a fine word Processor, it's just that Smithson's Electronic Author is better.

The format is text window and command window. The text window is either 51 or 64 characters wide dependant on user choice, and twenty lines deep. The command window is two lines and allows input of the abbreviated commands to control the functions and text manipulation.

The keyboard soon doesn't appear to miss letters, over, and the text, even with 64 characters a line is clean, neat, and pleasant to read.

In theory, the D-Data's "Copy" program should allow the WP to work with any printer. It works fine with my Xerox, but I'm having trouble trying to get the centring to work! It's a tape based WP but a Dragon-Disk version is available and a Disk Version is currently in production.

All the usual: Natural Search and replace (selective and global), block move, copy, and delete, word count, etc, and very easy to operate. The program also has one up an unpatched Textewriter in that it has a right justification mode built into it so that it is possible to have your text placed in clear blocks without a jagged right hand margin.

All in all, I like this word-processor and will now be using it instead of Textewriter. It would be nice to see word-wrap incorporated as an option.

Jason Orbaum



Communication

Send in your questions, requests, and news to: Communication, Dragon User, 12-13 Little Newport Street, London WC2H 9EE.

Problem: Can anyone help us with software/hardware specifications suitable for use by children with physical and mental handicaps? We have been given a Dragon 32 and cassette recorder, but cannot find any of the above. We call our Dragon "Puff"; can someone provide some input? Can he be sound-expanded by using a tape recorder? Can he talk in text? Any offers of help/ideas gratefully accepted.

Enquirer: Stuart Boardman, obj Westgate Children's Home, 79 Victoria Road, Elstree, Herts, UK.

Problem: What are the functions of the ROM routines, at addresses 38800, 40200, 34200, 39800? What are the family requirements?

Enquirer: Paul Martin, 50 Lime Avenue, Penrith, Cumbria, LA5 8LP, UK.

Problem: Could anybody help me in securing a circuit diagram for an EPROM burner for the Dragon 32?

Enquirer: Paul D. Kenney, 46 Craven, Georgetown, Tennessee, USA 37064.

Problem: Is there anyone in Edinburgh who has a Dragon 32 who is willing to exchange games, etc?

Enquirer: Ryan Henderson, 2 Beech Cropperfield, Edinburgh, Scotland EH16 9TU.

Problem: Is there anyone out there who is willing to put out listings of basic programs for a Dragon User with no printer?

Enquirer: T. Jenkins, Llyw Helyd, Newport, Penfroslaislwm, SA2 0ZT.

Problem: Does anyone have or know about the "Supersize cartridge"? Does anyone know of a TTS/Dragon computer for BBC Micro? Does it exist or is it a myth?

Enquirer: Ian Rocket, 29 Grosvenor Road, Buxton, Derbyshire, UK DE4 2PS.

Problem: Is anyone using a Dragon 32 for duplicate badge printing?

Enquirer: IW Case, 10 Tilbury Road, Hemel Hempstead, Herts, UK.

Problem: I need to buy or borrow (all post paid) the following Dragon Users: June 1983, July 1983, August 1983, September 1983, and has anybody got the demonstration 17 from Sprite Magic. I keep getting mistakes in lines 20 or 30 and I need one that works.

Enquirer: Dennis Gates, 104 Bell Road, Newton Hall Rd, Durhams, DH1 5LU.

Problem: Could you please tell me how to achieve a scrolling effect in Basic, on the Home screen, as in games such as Grand Prix, Speed Racer, etc.

Enquirer: Steve Driess, 103 Valley View, Lombergton, Newcastle-upon-Tyne.

Problem: Would coupling two Dragon 32s together produce extra memory or more than the 256 already available? If not, how do I do the link up?

Enquirer: J. D. Wall, 26a Cavers, Cavers, Cavers Road, Didsbury, M23 4SL.

Problem: I have owned a Smith Corona Speedster 80 printer since Christmas, and have found it to be a bargain at around £100. However, the manual is not clear on the production of graphics. I have several software programs and none of them work satisfactorily. I would also like to know how to load a program from DragonOS using the Boot command.

Enquirer: Steven Barker, 24 Carroll Drive, London, Stock-on-Trent, Staffs ST3 1AF.

Problem: I have got Speed Pages, but because I have used certain my physical software they to get into it, I just get traps 1, 3 or 4 instead. If anyone has any hints, please write.

Enquirer: G. Mills, 281 WO3 (SSM) Mills, H. G. Squash, 7th Regt, BPPD 15.

Problem: I have a CP4-80 printer, but I don't have a program for dumping graphics onto it the right way up. Please help me because it is not very useful having a printer with pictures sideways on it.

Enquirer: Nicholas Parkes, 18 Battledown Road, St. Albans, Herts AL4 4DA.

Problem: Is there any way I can adapt McDonald's Backgammon to work with my Trojan Light Pen, as the game has a light pen friendly?

Enquirer: Daniel Sivell, 47 College Close, Gateshead, Tyne and Wear NE8 2HZ.

Problem: I have a Tandy CGP4-80. How do I turn the Home screen off the printer, is it a matter of a few simple codes, or do I have to buy some software? If so, where do I buy it?

Enquirer: D. G. Phillips, 10 Brookstone Hall, Road South, Southgate, London, NW10 7DQ.

Problem: I have a Dragon 32 and an alpha/numeric printer/ribbon interface for a Spectrum. Can anyone tell me if the printer is compatible with the Dragon, and how I can connect to a suitable socket? I have a centronics cable, but when I remove the interface from the printer I will be left with a bundle of wires and I don't know how to tie them up with the cable. Can anybody send me a wiring diagram or help with my expenses.

Enquirer: R. Burrows, 134 Parkfield St., Runcorn, Cheshire, WA4 3PT.

Problem: I have a small program that I wrote in Basic and occupies lines 1 to 47 consecutively and which has a large number (800+) of data lines attached to it, starting at line 100, making the total memory in excess of 32K. I used POKE 2058 NEW to enable this large use of data. I tried to RELOAD 100,100,1, the whole program, and get 80 ERROR. My four year old manual did not help, and I could not refresh the memory and had to CLLOAD again. I checked the memory and found 80 left. By removing some data lines and leaving 800 bytes in memory, the RELOAD worked. Could anyone explain what POKE ERROR is and how to avoid it, using all available memory?

Enquirer: Alastair Gun, 168 Poly Lane, St. Albans, Herts, UK.

Problem: Could anybody help a BBC CoCo 32K owner with the conversion of the Writer program (May '83) and the Wordpro program (July '83) from Dragon format, especially the EQU, ADDRESS or DATA statement changes. I would also like to know if anyone willing to sell their July '83 issue (P200 and 1000 others) — £12.50.

Enquirer: Edward Moore, 21 Allerton Lane, Stevenage, Herts SG1 2PF.

Problem: Is there a Stockport or South Manchester Dragon Club?

Enquirer: Keith Crimpton, 21 Waverton Rd., Heath Chapel, Stockport, Cheshire SK4 5JT.

Problem: I am looking for a copy of the Computervoice synthesizer program by Dragon Data.

Enquirer: John Campbell-Rees, 12 Sturt Street, Trefethen, Rhosllan, Mid Glamorgan, CF4 2PR.

Problem: I have a Dragon 32 connected to a monitor caused by not being able to find the maximum 16' memory in 8k Mode, also I have been given a Hitachi compact floppy disc drive model FD13800 (80k Drive) and was wondering if anyone knew how to use it with the Dragon.

Enquirer: Mr. E. P. Pritchard, 79 Lodge Oak Lane, Tenby, Pem, TN12 0GD.

Problem: I am a registered Dragonist with no printer. There used to be adverts to people who would print out listings for you, but I can't find any now. Do you know anyone with a suitable printer who would do this service?

Enquirer: T. Jenkins, Llyw Helyd, Newp, Herts, SG10 0ZT.

Problem: What is RTTY and could I have some information on private radio?

Enquirer: R. Vaughan, 169 Port Tenant Road, Port Tenant, Swansea, W. Glamorgan, SA1 6JU.

Communication

Stuck for a routine? Need some obscure equipment? Feeling cut off? Fear not — someone, somewhere can help you! Write down your problem on the coupon below (make it as brief and legible as possible) together with your name and address and send it to Communication, Dragon User, 12-13 Little Newport Street, London WC2H 9EE. We'll publish it as soon as we can — meanwhile, maybe there's someone you can help this month!

Problem

Name _____
Address _____

Disc rescue

Pam D'Arcy rescues good sectors from a corrupted disc

HARING purchased a second-hand pair of 40-ton single-hulled drivers at a bargain price (despite a round trip of 250 miles), a square of PIP drivers followed making the fleet per hour/year worthed just-as-good again after all. This was a particularly timely problem as it presented essential BAGHUF's being taken of stock full of her clients of some contract work that I was treating on the Dragon. On however, I quickly produced a few lines of BASIC to copy all the readable sectors from a defected disc to a newly-formatted disc on the second-drive. I have since added additional options, including single drive working, no produce ~~DISK~~ and ~~DISK~~ Back-Up Good Function. Although it will now form part of my Delta-40T fleet (10 + 20kg PIP) — hence the credit line in it, it is such a short but useful program that I cannot resist sharing it even with non-members of the Delta-40T.

It has only been tested on 400 people, so it's still a long way off, but it's a good start.

test satisfactorily on the Oregon, but optional parameters are built into it for 4-track longitudinal recording single/multiple drive operation. In order to cater for single drive users, 72 consecutive sectors (of single-sided drive track) of data are read into 20 and 16 arrays before data storage, thus requiring 10 disc changes for a 40 track single-sided backup — not much worse than BAC/CLIP and pretty good, I feel for a field program. The sequential space 'resistant' in reading in BAC/CLIP's garbage collection may take place (20 sectors affects 10% of reading time at a time).

When reporting class errors, no screen's page is included for those without problems. The error-reporting is up to the bottom of the screen, there being ample time for there to be noted an page before they disappear should there be a large

To ensure that the destination disc is error-free before commencing the back-up, QIC-2000 is provided with a self-test facility.

single-sided 80-track systems will recognise steps 380-480 as being the guts of the 'patch program' supplied by Dragon Data to extend the memory size to 16K. But even

A sector of ADC II space characters is written to the destination disk in plain text sections unable to be read from the source disk. Should the faulty sector have occurred in the middle of a BASIC program, LOADING and LISTING the program from the new disk after *DATA00000000* has finished will probably allow a wholly erroneous line number containing a number of space characters on the screen. DELETE the offending line numbers and as much as possible of an affected BASIC program will then have remained.

When initially typing/entering programs containing automatic error handling log lines like **20 ERROR GOTOB05**, it is often easier to start off by temporarily REMarking out such lines, although it is obviously an essential part of the program once you are happy that it seems to be typed in correctly.

BLABY COMPUTER GAMES

NEW TITLES



DRIVER'S DRAMA — Driver to the left and left-to-right wheel, howe'er, there's a chance that a Diamond Motor of Texas model always turned corners. This quarter-mile is the last place you'd expect to see one. *Autosport Action* (p. 50)

卷之三

TEMPLE OF SOLOMON—James and John continue their tour. The latter is anxious for them to understand what Paul has in the first of his 20 Articles. *Actions.*

TRUNK FOUR DIFFERENT GAMES



Journal File... after years of reading and learning you are finally in business for yourself



Answers — (comes in the great north —
by stages, from west into Puritan and high
and low Northern culture that greatest round,
and hence, and the whole set. □



COMING CHALLENGER — "Julius Caesar" has come to go further than the galaxy from within the safety of your reading, but not for long — no less than 300,000,000 light-years away. He will challenge your reflexes and the power of your mind and your heart.

GOLDEN OLDIES



Answers — (comes in the great north —
by stages, from west into Puritan and high
and low Northern culture that greatest round,
and hence, and the whole set. □



Journal File... after years of reading and writing you are finally in business for yourself

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Fault Line

Create a landscape with this program by P. Whittaker

BACK IN the February issue of *Dragon User*, I wrote an article on Three-Dimensional Graphics for the Dragon. Although I dealt with the equations needed for the rotation and manipulation of 3D co-ordinates, I did not cover the subject of hidden-line removal. As a result, the objects drawn tended to look as though they were made of chicken-wire, and were often hard to understand. To avoid more soldered objects, I decided to devise a way of removing the lines which pass through from the back of the object, and mess up the display. Such a technique is called 'hidden-line removal'.

Flat surface

FAULT LINE MACHINE is a program which generates artificial landscapes from a flat surface, and demonstrates one easy method of hidden-line removal. The program works by generating a number of random fault lines across the face of the landscape, and moving the opposite sides under fault-line either up or down a small distance. After a sufficient number have been developed, a fully developed landscape will develop. If the process

is continued, the landscape will continue to get more and more pointed and mountainous.

If the landscape has not developed sufficiently, press the (C) key, and you can generate a few more fault lines.

Once a landscape has been generated, a computer screen today by pressing the (P) key will return to the menu screen, whilst any of the other keys will call the appropriate routines.

The remaining functions all deal with the details of the landscape display. Pressing the (F) key will fit the sea, as all locations below the baseline level of the landscape. The landscape will be rendered using hidden-line removal, but this time the sea will have come in, and the deepest valleys will have disappeared. The computer makes it easier to get a feel for the shape of the land. In a similar way, pressing the (R) key will also reduce the landscape using

84K mode. These arrays can be made bigger, which will allow for a larger picture to be used. The X and Y arrays are used to store the landscape data, whilst the X2 and Y2 arrays are used to store the modified landscape data used when drawing the display.

When a landscape is generated in 16K the program first asks for the grid size, and the number of faults. A flat surface is calculated to fill the grid (200-210), and then this surface is 'transplanted' by each of the faults. This generated grid is calculated to hold the seven co-ordinates of the landscape, and these co-ordinates are directly manipulated by the program. This will give us having the same perspective calculations. Each faultline is generated by randomly choosing new points on the surface. From these points (X1, Y1) and (X2, Y2) we can calculate the equation of the faultline, $A0 + B0 \cdot X + C0 \cdot Y + D0 = 0$. Then another couple of random numbers are picked to decide which side of the lines will be moved up or down (0.00-1.00). The computer will then scan through the arrays and modify the vertical component of each point's first coordinate according to the appropriate side of the fault line.

The equation for a straight line uses the formula $AX + B = C$. With this formula for X and Y, we can calculate the values of A and B, and so derive the equation of the line itself, $A = (Y1 - Y2)(X1 - X2)$ and $B = Y1 - A \cdot X1$. Then, once we have this line equation, we can test all of the points on the grid surface to see if they fall above or below the line. Inserting the X value in the equation, will generate a Y value. If this is greater than the Y value of our co-ordinates, then we know it is below the line. Similarly, if it is smaller then it corresponds to above the line. In this manner, we can discover on which side of the fault line each co-ordinate is, and move it up or down accordingly.

The landscape is then drawn out on the PMODE4.4 screen, and then displayed to the PMODE4.1 screen (455-555). When the landscape is drawn in as a wire frame, the programme uses the main arrays (X) and (Y). When the landscape is drawn using hidden-line removal the secondary arrays (X2) and (Y2) are used. This is because the (P) key routine modifies the array data, and would not allow for the (P) routine to continue. Functions if it used the main arrays.

Routines

The (F) routine reads through the data in the main arrays (550-600), and if it finds any co-ordinates which fall below the grid baseline, it sets them to that base line level. All of these co-ordinates are copied into the secondary arrays for display. The (P) routine works by copying the original arrays across into the secondary display arrays. Both of these routine load automatically into the 3D-based display routine (560-610). This draws in the landscape starting with the furthest back parts, and working

Fig.1 Black lines to point out a segment

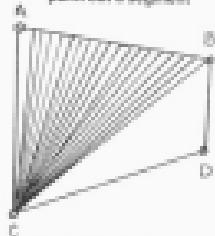
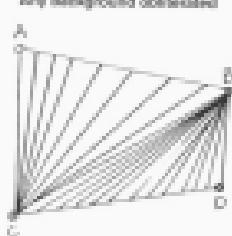


Fig.2 Segment fully painted. Any background obscured



is continued, the landscape will continue to get more and more pointed and mountainous.

Within PUM an option list will be displayed, press the (F) key to generate a new landscape. The computer will then ask for grid size for the landscape. This can be up to about 25 on a Dragon 32, but can be higher if on a Dragon 64K mode. Then the computer will ask for the number of faults to generate. The landscape is drawn on the PMODE4.4 graphics screen, and displayed on the PMODE4.1 screen. The display is updated each time the results of new fault-line are calculated. Whilst the landscape is being generated the display will be in green, but once the final landscape has been drawn, the display will change to white. However at this stage the display will still be in the usual 'wire frame' style, and will be see-through. The hidden-line

removal is removed, but this line will then fit with the sea out.

If the landscape has developed in such a way that it is all either under the sea, or all above it, then it can be rotated or lowered by pressing the (M) key, and then pressing the vertical offset for the display. When this recalculation is finished, the programme will return to the menu screen. To draw in the sea landscape, you will need to press either the (F) or (P) keys.

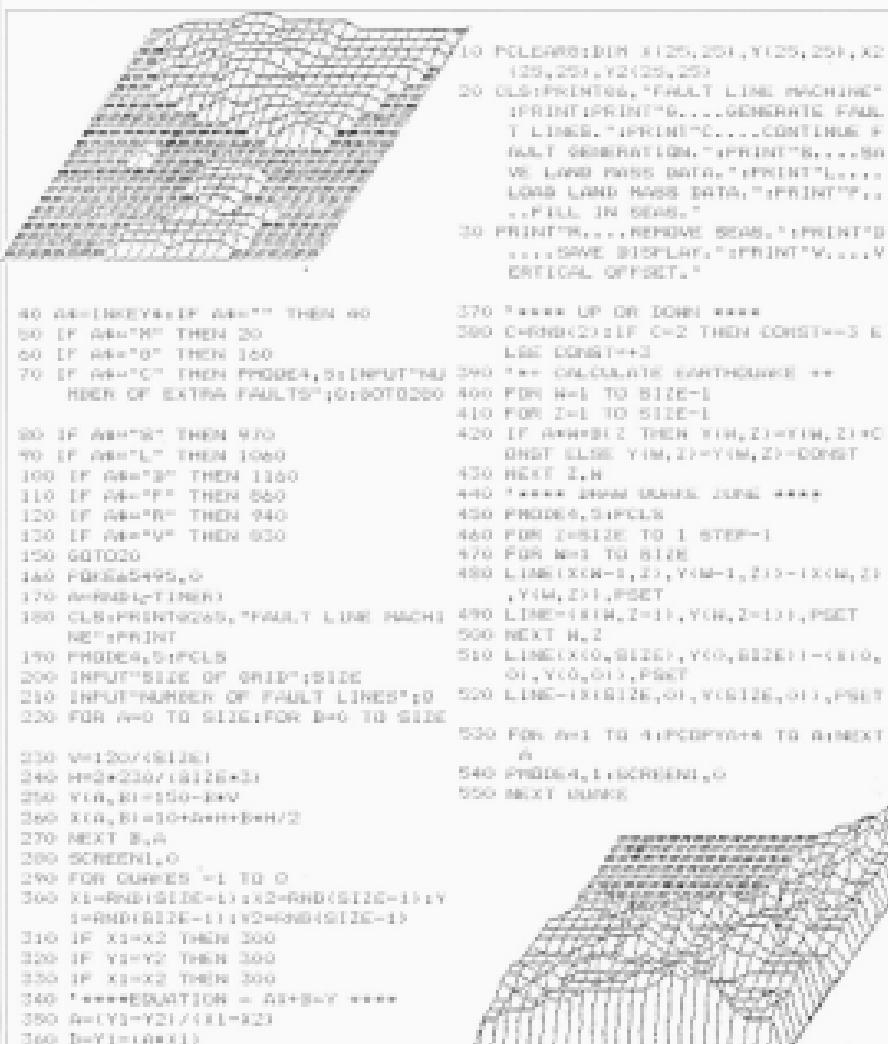
Once you are happy with the landscape, the display can be stored by pressing the (D) key. This is currently set up for disc, so tape users will need to change the command from SAV16 AL2072 (616, 41104 to CSAR16 AL2072, 616, 41114). The program makes use of two sets of arrays, (X1, Y1), and (X2, Y2). These are dimensioned at the start of the program, if you are using a Dragon without discs, or in

towards the front of the display. In this way, the closer parts of the landscape are drawn over the areas behind, and any hidden lines get removed. To make sure that these hidden lines are indeed covered, the landscape is redrawn in a wavy manner, before a solid. The space between each line of the waveform is filled with black lines, painting out anything underneath.

This is done by once again using the $Y=AX+B$ equation. This time we use the

center co-ordinates for the two points that will be generate the line equation (Fig. 1). The program will calculate the equation of the line from corner 'A' to corner 'B'. Then it will draw a black line from a point on that line to corner 'C'. (This is done by inserting the range of possible X values between corners 'A' and 'B' into the line equation.) When this is done, the program will work out the equation for the line between 'C' and 'C'' and then draw a black line from

each point on this lines corner 'B' (Fig. 2). Then finally, the program will close in the outline 'A-B-C-C' in white. By doing this, and moving from the back of the display object to the front, we can make any object appear solid. We are in effect displaying a solid black object with white contour lines on its surface to make it visible. Using this technique, it should be possible to draw any object on screen, giving it a solid appearance.



```

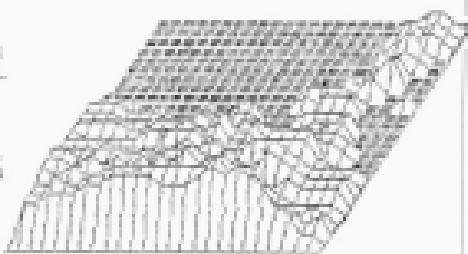
10 POLARIS:10H 8120,2004,Y120,2004,X2
120,2004,Y2420,2004
20 CLR:PRINT#1,"FAULT LINE MACHINES"
1PRINT#1,"...GENERATE FAULT
1LINE,"1PRINT#1,"...CONTINUE FAULT
1LINE GENERATION,"1PRINT#1,"...SA
VE LAND MASS DATA,"1PRINT#1,"...
LOAD LAND MASS DATA,"1PRINT#1,"...
FILL IN SEAS."
30 PRINT#1,"...REMOVE SEAS,"1PRINT#1
"...SAVE DISPLAY,"1PRINT#1,"...A
CTICAL OFFSET."
40 AB=1:NKEY$=IP AB="" THEN 40
50 IF AB="N" THEN 20
60 IF AB="S" THEN 150
70 IF AB="C" THEN PWDCA,0:INPUT#1,"0:DOT0250
100 FOR EXTRA FAULTS":0:DOT0250
80 IF AB="T" THEN 920
90 IF AB="L" THEN 1040
100 IF AB="R" THEN 1160
110 IF AB="F" THEN 650
120 IF AB="P" THEN 940
130 IF AB="U" THEN 630
150 GOTO20
160 PWDCA,0:CLS
170 AB=INKEY$-1:LINE#1
180 CLS:PRINT#1,"0:LINE MACHINES"
190 PWDCA,0:POCLS
200 INPUT#1,"SIZE OF GRID":SIZE
210 INPUT#1,"NUMBER OF FAULT LINES":0
220 FOR A=0 TO SIZE:FOR B=0 TO SIZE
230 X1=120+X1*SIZE
240 Y1=230+Y1*SIZE
250 X2=X1+SIZE-1:Y2=Y1+SIZE-1
270 NEXT B,A
280 SCREEN1,0
290 FOR CURVES =1 TO 0
300 X1=AB*SIZE+1:Y1=PWD(SIZE-1)*Y
1=PWD(SIZE-1)*Y2=PWD(SIZE-1)*Y
310 IF X1=x2 THEN 300
320 IF Y1=y2 THEN 300
330 IF X1=x2 THEN 300
340 '*****EQUATION = A*X+B*Y ****
350 D=(Y1-Y2)/SIZE-0.2
360 D=Y1+0.001
370 ***** UP OR DOWN ****
380 CHONK(X1):IF C=2 THEN CONST=-3 E
LSE CONST=+3
390 '*** CALCULATE EARTHQUAKE ***
400 FOR H=1 TO SIZE-1
410 FOR I=1 TO SIZE-1
420 IF AB=H,I THEN X1H,I=Y1H,I+0*C
430 NEXT Z,H
440 '*** DRAW MOUNTAIN JUNGLE ***
450 PWDCA,0:POCLS
460 FOR I=SIZE TO 1 STEP-1
470 FOR H=1 TO SIZE
480 LINE(X1H,I+1,Z,Y1H,I+1-X1H,I+1
,Y1H,I+1),POSET
490 LINE=(11H,I+1),Y1H,I+1),POSET
500 NEXT H,Z
510 LINE(X10,SIZE),Y10,SIZE-1-S10,
01,Y10,01),POSET
520 LINE=11SIZE,01,Y11SIZE,01),POSET
530 FOR A=1 TO 4:PCOPY#1 TO B:NEXT
A
540 PWDCA,1:SCREEN1,0
550 NEXT LINING

```

```

560 PH00E4,1:SCREEN1,1:00TO40      950 Y1=M, Z1=Y1N, Z1:1521M, Z2=0 M, Z3:M
580 *DRAW IN AB 3D-SOLID      950 EXIT Z,W,R=0
590 FOR Z=SIZE TO 1 STEP -1      960 PH00E4,1:POLY:SCREEN1,0:00TO30
600 FOR W=1 TO SIZE      970 CLS:PRINT@230, "DRAW LANDSCAPE D
610 X1=Z*W-1, Z1:Y2=Z*W, Z2:Z3=Z*W      970 ATA":PRINT@PRINT
620 , Z-1+X4=Z*(W-1, Z-1)      980 INPUT "FILE TITLE":FILE8
630 Y1=Y21M-1, Z1:Y2=Y21M, Z2:Y3=Y31M      990 PRINT FILE8:SIZE
640 Z1=Y1-Y21M(Z1-Z2) Z1=Y1-(ALW)      1000 FOR A=0 TO SIZE:FOR B=0 TO SIZE
640 IF R1 THEN IF Y1=Y2 AND Y1=150      1010 FWRITE FILE8;X1,B
640 -25V THEN COLOR0,1 ELSE COLOR1,      1020 FWRITE FILE8;Y1,B
650 O      1030 NEXT B,A
650 FOR X=A1 TO X2      1040 CLOSE
660 Y1=M+21      1050 GOTO20
670 LINE(X1,Y1)=150, Y1 ,PRESET      1060 CLS:PRINT@230, "LOAD LANDSCAPE
680 NEXT X      1070 DATA":PRINT@PRINT
690 R1=Y1-Y21M(X2-X1) Y1=Y1-(ALW)      1080
      200 FOR X=A1 TO X2
710 Y=M+21+R1
720 LINE(X1,Y1)=150,Y1 ,PRESET
730 NEXT X
740 LINE(X1,Y1)=150,Y1 ,PRESET:LINE=(X1,Y1),PSET:LINE=(X2,Y2),PSET:LINE=(X3,Y3),PRESET
750 NEXT X, Z
760 COLOR1,0
770 LINE(X1,0), Y1,0,0:011=0X1512B,03,
      Y1:150,011,PSET:LINE=(X4,M+21M,01
      250,Y1),SIZE=1,PRESET
780 FWRITE FILE8,0
790 SCREEN1,1
800 SCREEN1,1
810 QUIT040
820 *MOVE LANDSCAPE
830 PRINT:INPUT"ENTER LAND SHIFT OF
      PSET":IN
840 FOR W=1 TO SIZE-1:FOR Z=1 TO SI
      Z-1+Y1M, Z1=Y1M, Z1=ALW:Z1,Z1
      GTO20
850 *FILL IN THE SEA
860 SCREEN1,0:FOR W=0 TO SIZE
      FOR Z=0 TO SIZE
870 IF Y1A,Z1>150-25V THEN Y2=M, Z1=
      150-25V ELSE Y2=M, Z1=Y1M, Z1
880 X2=M, Z1=M+21M, Z1
890 NEXT Z,W
900 NEXT Z,W
910 KEY
920 PH00E4,1:POLY:SCREEN1,0:00TO30
930 *DRAW LAND PAGE
940 *REMOVE SEA
950 SCREEN1,0:FOR W=0 TO SIZE:FOR Z
      W=0 TO SIZE
      1070 INPUT"FILE TITLE":FILE8
      1080 FREAD FILE8;X1,B
      1090 FOR A=0 TO SIZE:FOR B=0 TO SIZE
      1100 FREAD FILE8;Y1,B
      1110 FREAD FILE8;Y2,B
      1120 NEXT B,A
      1130 CLOSE
      1140 W=120:SIZE
      1150 GOTO20
      1160 PRINT:INPUT"NAME DISPLAY TITLE
      "LAB
      1170 SAVE AB,3072,4016,41174:00TO20
      1180 *UCH1994 BY PETER WHITTAKER,

```



Mission impossible

David Berry sets his sights on a high-flying job

TIME FIRST: *longing* is nothing more than a set of instructions; there's no reason on Earth for anyone to type it in; just read and digest. The second is the *Basic* part of the program which classifies the time spent putting up and taking down the campsite. The third part is the *trivette* which finds the time exactly as given there; you'll get trouble seeing high scores, which are stored in the percentages in place of all these scores. Each time you get a new high score, revalue the *Basic* part of the program. (My highest was 2430.) The final block is the machine code.

Roger is a shooting gallery. You're sitting in the rear gun seat of some aircraft and in front of you is a gun sight which can be controlled from the keyboard or through the joystick. Across your field of view, just in range of your missiles, flies an endless stream of enemy aircraft. Pressed the button and then a dozen or so missiles are launched and start heading towards the centre of the sight. Remember that: the missile has no intent in life other than finding the centre of the sight. When it gets there it explodes whether or not the sight is fixed on an aircraft at the time. One tip I'll give you is that if you wait until you have the sight on an aircraft before pressing the button, you'll always miss. You have to fire the

— 10 —

Cloud production is a process of creating and maintaining cloud infrastructure and services. It involves the use of cloud computing technologies to provide scalable and flexible computing resources. Cloud production is a complex process that requires a deep understanding of cloud computing concepts and technologies. It involves the use of various tools and technologies to manage and monitor cloud infrastructure and services. Cloud production is a critical component of cloud computing, and it is essential for the success of any cloud-based application. Cloud production is a rapidly growing field, and it is expected to continue to grow in the future. It is a challenging and rewarding field that requires a combination of technical and business skills. Cloud production is a critical component of cloud computing, and it is essential for the success of any cloud-based application. Cloud production is a rapidly growing field, and it is expected to continue to grow in the future. It is a challenging and rewarding field that requires a combination of technical and business skills.

missiles from the aircraft and follow it through until the missile arrives which requires a mere bit of imagination.

Now and again the enemy will launch a counter-attack and fire a missile at you. These start off as pretty dookies, easy to hit objects, but speed up as your score improves until, manko, you don't have a

chance of hitting them. Then they hit you and you lose a life.

At the start you have three lives and can add another four by knocking out everything in sight before your score reaches 100. After that you're on your downward path. High flying aircraft are easier to hit since you have more time to focus your sight and as they score less than low flying ones. If you want to start dragging up the joystick hold it down to pause the game; if you get a successful pass it'll re-instate.

The basic routine gives you a nice analysis at the end so you can tell how badly you've done, whether your fitness needs improving and so on. To have another go just RESTART. Stopping in by the PRACTICE button, I'm afraid.

If you don't want to type it all in (who can blame you?) send me a tape, return postage and two quadruplex tapes to tribe the writer with and you'll get a copy straight out of the computer. Please, please, have the label where you write "Hapner" put plenty of room as well as lots of blank corners of space on your tapes, so to say which side of the tape and whether they're a duplicate or same tape.

Section 2 - Data

Concealing Data

Dene Bebbington shows you how to encode and decode text files

THERE ARE times in computing when it is necessary or desirable to hold or transmit data in an encoded form so that unauthorized users cannot obtain sensitive or personal data. For example, on the UNIX operating system users' passwords are stored in an encoded form so that even if somebody does get into the password file will not be able to use them unless he knows the encoding technique and the keyword used. Data encryption methods can to some extent prevent the abuse of computer systems.

There are two main methods of coding, these being substitution and transposition. The substitution methods work by substituting each character by some other, this being done by either a technique and keyword being used. Transposition methods work by changing the order of the characters in the text, so that all the characters are the same before jumbled up to conceal the original text. Obviously if a technique uses both substitution and transposition then the code will be very hard to break compared to if just one method was used.

Here I present a program which allows users to encode and decode text files (saved on cassette) using a substitution method.

The method presented here is a more advanced version of the PLAINPAIR code which was used in the first word war to encode secret messages. It is based upon a matrix, which contains all the available characters, but where the order depends on a keyword entered by the user. Thus as the encoded text depends on the keyword, different text will be obtained from different keywords.

The programme Listing 11 works by setting up a 7 row by 8 column matrix, then allocating 42 different characters. The characters that are allowed are "ABCDEFOPQRSTUVWXYZWXYDZ-0123456789" - "Z" (ahem...) is a spacer, a hyphen is inserted and an unescaped "illegal

and repeating characters. For example, the hyphenated "ONCE UPON A TIME" would usually be "ONCE UPATIME". These are input into the matrix along with the unshifted characters. Here the matrix would be:

ONDE' U
PATIM.
EDFGHJ
KLMQRSP
WXYZD
ZBZBZB
BZBZBZ

Wolfgang Jürgens — 1988

Characters are encoded in pairs so that if a line has an odd number of characters a space is added at the end of the line. If the two characters being examined are in the same row then we add 1 to the column, eg 'F' would be encoded as 01. If we move to the next row then we 'wrap-around', eg 'U' would be encoded as 02. The same rule applies to characters in the same column except that we add 1 to the row, so that 'G' would be encoded as 03. If they are not in the same row or column then we take the characters at the opposite corners, so that 'B' would be encoded as 05.

Wavelength

It applies the same principles as decoding except that instead of adding 1 to the row or column we take away 1 from it, symmetrising to wrap around if necessary. We apply the same rule for observations that are not in the same row or column.

The program works by reading in a text file (tape cassette to be encoded or decoded), after processing this file is saved back onto cassette in the encoded or decoded form. The user must enter the name of the file and is prompted to prepare the cassette recorder when the file is to be read in or saved.

The program has been written in a modular manner and consists of several subroutines which are called from within the main body of the program, that is lines 2480 to 2680. This makes it easy to modify

to make use of a disc drive or allow more characters etc.

The important submatrix is the one at lines 1882 to 2388 as the actual employee or decodes a message depending on the value of the variable EC. It does this by setting AD to 1 if encoding or -1 if decoding. This is then used to calculate the row or column of pairs of letters.

The other two important subfunctions use these to find the position of the two braces in the matrix [lines 104-10 to 115-16] and to strip all legal characters from a line of text [lines 116-11 to 118-19].

To set up a test file containing a message to be decoded use the program given in Listing 3. It takes up to 100 lines of test to be entered, and input is terminated when 100 lines have been input or when a full stop is entered on a new line.

As the program needs a keyword to encode and decode you may be wondering which is the best to use. Most, when a method such as this is being used which puts the keyword and remaining letters in a matrix, the most effective way is to have a keyword which contains as few repeating characters as possible and contains as few as many characters as possible by the program. This requires it more difficult for the code to be broken. For example, the keyword "COASTANHOPLE, 762647" gives a better matrix than the keyword "COASTANHOPLE".

It should be remembered that the same keycode must be used for both encoding and decoding otherwise strange results will be obtained.

The ability to conceal data on a computer by encrypting techniques can be useful when the data being held is only to be seen by authorized users or when messages which are being transmitted are to be kept secret. This program could easily be modified to encode data stored in a database and on cassette or disk, to decode messages sent from computer to computer via a network or telephone line.

Writing T

Lesson 2

News desk

If you have any new products for the Dragon — software or hardware — ring the News Desk on 01-427 4340.



Current sponge

INTEGRITY Solutions have produced an anti-static kit for microcomputers. The kit, which comprises two leads with pick-up heads running in a static sink unit, which is in turn attached to an earth lead, costs £49.95 and also includes an anti-static sponge and cleaning fluid. This might well be of interest to those using expensive computers in a high-static environment like an office. Otherwise, static protection can

be improvised more cheaply with fine insulated wire cut from a VDU screen or microcircuitous to a reliable earth point like a steel radiator.

"Recent surveys indicate that some 75% of computer service calls are due to static electricity," states Integrity, and our own electronics consultants confirm that this could, indeed, be the case. Enquiries to Integrity Solutions, 504 Manchester Road, Salford, Greater Manchester, Lancs OL1 2HG.

Extend the 64

HANFIS Micro Software, previously known for disk-based applications programs for the Dragon 32 and 64, is offering BASIC 42, designed solely for the Dragon 64, which, the makers claim, greatly enhances capabilities.

The program corresponds, for Dragon 64, though other formats may be available inhouse, and makes use of the 64's ability to operate in 16-bit mode with 64K of RAM. The program boots into the car-

tridge area, above DOS, and loads 16K of memory from BASIC. The existing 16K of BASIC, and 16K of DOS, are retained, but modified.

BASIC 42 allows printing on the hi-res screen with standard PRINT commands, using 24 lines of 40 characters per line, notwithstanding character sets, repeating keyups to eight user-defined keymaps plus one fixed, but non-destructive, absolute inverted video, underlining, some write print com-

mands and functions, commands in lower case, and automatic startup of a BASIC program.

The core program occupies some 4K of memory, and allows other utilities to be loaded in from disk as required. Three such utilities are already written: a program that "patches" the known bugs in DragonBasic 1.0, a print "splicer", which allows the computer to be used while the printer is operating, and a "help" utility which extends some of the features of BASIC 42, with BREAK, disable, scroll facilities, pause, listing, improved TROH (including single-stepping), plus expanded help and error messages.

Harris Micro Software hope to extend the range of utilities to cover extra disk commands, graphical utilities such as lines and sprites, extra page capabilities, "radioshow" programs, communications software, and more. The "open-ended" nature of BASIC 42 means that it is possible to ex-

tend the Dragon's capabilities almost indefinitely.

The price for the core program BASIC 42, including alternative character sets, character drawing programs, and DragonBasic patches, is £14.95. The HELP utility, and the SPOOLS utility, will sell for £3.95 each. The programs will be available from October 1st.

Micro Show

THE West and West Computer Show is being held at the Park Hotel, Cardiff, on 15th November from 10h-6.30.

We have no news as to whether any of the Dragon suppliers will be able to attend, but there should be something to interest multi-MICRO users.

For more information contact Prentiss Contractors, Kings Hall Court, St. Bede's Major, Mid Glamorgan CF32 0SH. Tel: (0699) 622222.

Classified

MANFRED PRESENTS: UNDERGROUNDS OF DRUTH: an original adventure set in an underground network of ancient buildings, mines, and secret rooms.

DRAGHILLION: a 10 page romp for 16K plus includes Dragon, Spectrum, Commodore 64, Electron, Amstrad, and VIC 20.

MASTERPACE AND OPTIBASIC: an interesting approach to mathematics and spelling for age 8-12. Approximately 1000 words and children £2.95 each or £3.95 together.

DRAGON MUSIC: performances in four part harmonies, three pieces per tape. Scott Joplin, Bach's 1, Bach 2 £2.95 each or £5.95 for all three. Available only from Manston, Brixton, Croydon, Northwood Lane, Pinewood, Great Western Road, SW16 0DD.

Dragon User May '88 MicroShow £8.95 post free. Tel: (0181) 230 2607.

Dragon 640 double density, or new 3½" 160K. Tel: (0181) 230 2607. Electronics Lots of Disc Software House in Dragon Games — Post available £6.95 for 16K including 16K BASIC, £8.95 256K, 32K, 64K, 128K, 256K, 320K, 384K, 480K, 640K, 800K, 1.2M, 1.5M, 2M, 2.5M, 3.2M, 4M, 5.1M, 6.4M, 8M, 10M, 12M, 14M, 16M, 18M, 20M, 22M, 24M, 26M, 28M, 30M, 32M, 34M, 36M, 38M, 40M, 42M, 44M, 46M, 48M, 50M, 52M, 54M, 56M, 58M, 60M, 62M, 64M, 66M, 68M, 70M, 72M, 74M, 76M, 78M, 80M, 82M, 84M, 86M, 88M, 90M, 92M, 94M, 96M, 98M, 100M, 102M, 104M, 106M, 108M, 110M, 112M, 114M, 116M, 118M, 120M, 122M, 124M, 126M, 128M, 130M, 132M, 134M, 136M, 138M, 140M, 142M, 144M, 146M, 148M, 150M, 152M, 154M, 156M, 158M, 160M, 162M, 164M, 166M, 168M, 170M, 172M, 174M, 176M, 178M, 180M, 182M, 184M, 186M, 188M, 190M, 192M, 194M, 196M, 198M, 200M, 202M, 204M, 206M, 208M, 210M, 212M, 214M, 216M, 218M, 220M, 222M, 224M, 226M, 228M, 230M, 232M, 234M, 236M, 238M, 240M, 242M, 244M, 246M, 248M, 250M, 252M, 254M, 256M, 258M, 260M, 262M, 264M, 266M, 268M, 270M, 272M, 274M, 276M, 278M, 280M, 282M, 284M, 286M, 288M, 290M, 292M, 294M, 296M, 298M, 300M, 302M, 304M, 306M, 308M, 310M, 312M, 314M, 316M, 318M, 320M, 322M, 324M, 326M, 328M, 330M, 332M, 334M, 336M, 338M, 340M, 342M, 344M, 346M, 348M, 350M, 352M, 354M, 356M, 358M, 360M, 362M, 364M, 366M, 368M, 370M, 372M, 374M, 376M, 378M, 380M, 382M, 384M, 386M, 388M, 390M, 392M, 394M, 396M, 398M, 400M, 402M, 404M, 406M, 408M, 410M, 412M, 414M, 416M, 418M, 420M, 422M, 424M, 426M, 428M, 430M, 432M, 434M, 436M, 438M, 440M, 442M, 444M, 446M, 448M, 450M, 452M, 454M, 456M, 458M, 460M, 462M, 464M, 466M, 468M, 470M, 472M, 474M, 476M, 478M, 480M, 482M, 484M, 486M, 488M, 490M, 492M, 494M, 496M, 498M, 500M, 502M, 504M, 506M, 508M, 510M, 512M, 514M, 516M, 518M, 520M, 522M, 524M, 526M, 528M, 530M, 532M, 534M, 536M, 538M, 540M, 542M, 544M, 546M, 548M, 550M, 552M, 554M, 556M, 558M, 560M, 562M, 564M, 566M, 568M, 570M, 572M, 574M, 576M, 578M, 580M, 582M, 584M, 586M, 588M, 590M, 592M, 594M, 596M, 598M, 600M, 602M, 604M, 606M, 608M, 610M, 612M, 614M, 616M, 618M, 620M, 622M, 624M, 626M, 628M, 630M, 632M, 634M, 636M, 638M, 640M, 642M, 644M, 646M, 648M, 650M, 652M, 654M, 656M, 658M, 660M, 662M, 664M, 666M, 668M, 670M, 672M, 674M, 676M, 678M, 680M, 682M, 684M, 686M, 688M, 690M, 692M, 694M, 696M, 698M, 700M, 702M, 704M, 706M, 708M, 710M, 712M, 714M, 716M, 718M, 720M, 722M, 724M, 726M, 728M, 730M, 732M, 734M, 736M, 738M, 740M, 742M, 744M, 746M, 748M, 750M, 752M, 754M, 756M, 758M, 760M, 762M, 764M, 766M, 768M, 770M, 772M, 774M, 776M, 778M, 780M, 782M, 784M, 786M, 788M, 790M, 792M, 794M, 796M, 798M, 800M, 802M, 804M, 806M, 808M, 810M, 812M, 814M, 816M, 818M, 820M, 822M, 824M, 826M, 828M, 830M, 832M, 834M, 836M, 838M, 840M, 842M, 844M, 846M, 848M, 850M, 852M, 854M, 856M, 858M, 860M, 862M, 864M, 866M, 868M, 870M, 872M, 874M, 876M, 878M, 880M, 882M, 884M, 886M, 888M, 890M, 892M, 894M, 896M, 898M, 900M, 902M, 904M, 906M, 908M, 910M, 912M, 914M, 916M, 918M, 920M, 922M, 924M, 926M, 928M, 930M, 932M, 934M, 936M, 938M, 940M, 942M, 944M, 946M, 948M, 950M, 952M, 954M, 956M, 958M, 960M, 962M, 964M, 966M, 968M, 970M, 972M, 974M, 976M, 978M, 980M, 982M, 984M, 986M, 988M, 990M, 992M, 994M, 996M, 998M, 1000M, 1002M, 1004M, 1006M, 1008M, 1010M, 1012M, 1014M, 1016M, 1018M, 1020M, 1022M, 1024M, 1026M, 1028M, 1030M, 1032M, 1034M, 1036M, 1038M, 1040M, 1042M, 1044M, 1046M, 1048M, 1050M, 1052M, 1054M, 1056M, 1058M, 1060M, 1062M, 1064M, 1066M, 1068M, 1070M, 1072M, 1074M, 1076M, 1078M, 1080M, 1082M, 1084M, 1086M, 1088M, 1090M, 1092M, 1094M, 1096M, 1098M, 1100M, 1102M, 1104M, 1106M, 1108M, 1110M, 1112M, 1114M, 1116M, 1118M, 1120M, 1122M, 1124M, 1126M, 1128M, 1130M, 1132M, 1134M, 1136M, 1138M, 1140M, 1142M, 1144M, 1146M, 1148M, 1150M, 1152M, 1154M, 1156M, 1158M, 1160M, 1162M, 1164M, 1166M, 1168M, 1170M, 1172M, 1174M, 1176M, 1178M, 1180M, 1182M, 1184M, 1186M, 1188M, 1190M, 1192M, 1194M, 1196M, 1198M, 1200M, 1202M, 1204M, 1206M, 1208M, 1210M, 1212M, 1214M, 1216M, 1218M, 1220M, 1222M, 1224M, 1226M, 1228M, 1230M, 1232M, 1234M, 1236M, 1238M, 1240M, 1242M, 1244M, 1246M, 1248M, 1250M, 1252M, 1254M, 1256M, 1258M, 1260M, 1262M, 1264M, 1266M, 1268M, 1270M, 1272M, 1274M, 1276M, 1278M, 1280M, 1282M, 1284M, 1286M, 1288M, 1290M, 1292M, 1294M, 1296M, 1298M, 1300M, 1302M, 1304M, 1306M, 1308M, 1310M, 1312M, 1314M, 1316M, 1318M, 1320M, 1322M, 1324M, 1326M, 1328M, 1330M, 1332M, 1334M, 1336M, 1338M, 1340M, 1342M, 1344M, 1346M, 1348M, 1350M, 1352M, 1354M, 1356M, 1358M, 1360M, 1362M, 1364M, 1366M, 1368M, 1370M, 1372M, 1374M, 1376M, 1378M, 1380M, 1382M, 1384M, 1386M, 1388M, 1390M, 1392M, 1394M, 1396M, 1398M, 1400M, 1402M, 1404M, 1406M, 1408M, 1410M, 1412M, 1414M, 1416M, 1418M, 1420M, 1422M, 1424M, 1426M, 1428M, 1430M, 1432M, 1434M, 1436M, 1438M, 1440M, 1442M, 1444M, 1446M, 1448M, 1450M, 1452M, 1454M, 1456M, 1458M, 1460M, 1462M, 1464M, 1466M, 1468M, 1470M, 1472M, 1474M, 1476M, 1478M, 1480M, 1482M, 1484M, 1486M, 1488M, 1490M, 1492M, 1494M, 1496M, 1498M, 1500M, 1502M, 1504M, 1506M, 1508M, 1510M, 1512M, 1514M, 1516M, 1518M, 1520M, 1522M, 1524M, 1526M, 1528M, 1530M, 1532M, 1534M, 1536M, 1538M, 1540M, 1542M, 1544M, 1546M, 1548M, 1550M, 1552M, 1554M, 1556M, 1558M, 1560M, 1562M, 1564M, 1566M, 1568M, 1570M, 1572M, 1574M, 1576M, 1578M, 1580M, 1582M, 1584M, 1586M, 1588M, 1590M, 1592M, 1594M, 1596M, 1598M, 1600M, 1602M, 1604M, 1606M, 1608M, 1610M, 1612M, 1614M, 1616M, 1618M, 1620M, 1622M, 1624M, 1626M, 1628M, 1630M, 1632M, 1634M, 1636M, 1638M, 1640M, 1642M, 1644M, 1646M, 1648M, 1650M, 1652M, 1654M, 1656M, 1658M, 1660M, 1662M, 1664M, 1666M, 1668M, 1670M, 1672M, 1674M, 1676M, 1678M, 1680M, 1682M, 1684M, 1686M, 1688M, 1690M, 1692M, 1694M, 1696M, 1698M, 1700M, 1702M, 1704M, 1706M, 1708M, 1710M, 1712M, 1714M, 1716M, 1718M, 1720M, 1722M, 1724M, 1726M, 1728M, 1730M, 1732M, 1734M, 1736M, 1738M, 1740M, 1742M, 1744M, 1746M, 1748M, 1750M, 1752M, 1754M, 1756M, 1758M, 1760M, 1762M, 1764M, 1766M, 1768M, 1770M, 1772M, 1774M, 1776M, 1778M, 1780M, 1782M, 1784M, 1786M, 1788M, 1790M, 1792M, 1794M, 1796M, 1798M, 1800M, 1802M, 1804M, 1806M, 1808M, 1810M, 1812M, 1814M, 1816M, 1818M, 1820M, 1822M, 1824M, 1826M, 1828M, 1830M, 1832M, 1834M, 1836M, 1838M, 1840M, 1842M, 1844M, 1846M, 1848M, 1850M, 1852M, 1854M, 1856M, 1858M, 1860M, 1862M, 1864M, 1866M, 1868M, 1870M, 1872M, 1874M, 1876M, 1878M, 1880M, 1882M, 1884M, 1886M, 1888M, 1890M, 1892M, 1894M, 1896M, 1898M, 1900M, 1902M, 1904M, 1906M, 1908M, 1910M, 1912M, 1914M, 1916M, 1918M, 1920M, 1922M, 1924M, 1926M, 1928M, 1930M, 1932M, 1934M, 1936M, 1938M, 1940M, 1942M, 1944M, 1946M, 1948M, 1950M, 1952M, 1954M, 1956M, 1958M, 1960M, 1962M, 1964M, 1966M, 1968M, 1970M, 1972M, 1974M, 1976M, 1978M, 1980M, 1982M, 1984M, 1986M, 1988M, 1990M, 1992M, 1994M, 1996M, 1998M, 2000M, 2002M, 2004M, 2006M, 2008M, 2010M, 2012M, 2014M, 2016M, 2018M, 2020M, 2022M, 2024M, 2026M, 2028M, 2030M, 2032M, 2034M, 2036M, 2038M, 2040M, 2042M, 2044M, 2046M, 2048M, 2050M, 2052M, 2054M, 2056M, 2058M, 2060M, 2062M, 2064M, 2066M, 2068M, 2070M, 2072M, 2074M, 2076M, 2078M, 2080M, 2082M, 2084M, 2086M, 2088M, 2090M, 2092M, 2094M, 2096M, 2098M, 2100M, 2102M, 2104M, 2106M, 2108M, 2110M, 2112M, 2114M, 2116M, 2118M, 2120M, 2122M, 2124M, 2126M, 2128M, 2130M, 2132M, 2134M, 2136M, 2138M, 2140M, 2142M, 2144M, 2146M, 2148M, 2150M, 2152M, 2154M, 2156M, 2158M, 2160M, 2162M, 2164M, 2166M, 2168M, 2170M, 2172M, 2174M, 2176M, 2178M, 2180M, 2182M, 2184M, 2186M, 2188M, 2190M, 2192M, 2194M, 2196M, 2198M, 2200M, 2202M, 2204M, 2206M, 2208M, 2210M, 2212M, 2214M, 2216M, 2218M, 2220M, 2222M, 2224M, 2226M, 2228M, 2230M, 2232M, 2234M, 2236M, 2238M, 2240M, 2242M, 2244M, 2246M, 2248M, 2250M, 2252M, 2254M, 2256M, 2258M, 2260M, 2262M, 2264M, 2266M, 2268M, 2270M, 2272M, 2274M, 2276M, 2278M, 2280M, 2282M, 2284M, 2286M, 2288M, 2290M, 2292M, 2294M, 2296M, 2298M, 2300M, 2302M, 2304M, 2306M, 2308M, 2310M, 2312M, 2314M, 2316M, 2318M, 2320M, 2322M, 2324M, 2326M, 2328M, 2330M, 2332M, 2334M, 2336M, 2338M, 2340M, 2342M, 2344M, 2346M, 2348M, 2350M, 2352M, 2354M, 2356M, 2358M, 2360M, 2362M, 2364M, 2366M, 2368M, 2370M, 2372M, 2374M, 2376M, 2378M, 2380M, 2382M, 2384M, 2386M, 2388M, 2390M, 2392M, 2394M, 2396M, 2398M, 2400M, 2402M, 2404M, 2406M, 2408M, 2410M, 2412M, 2414M, 2416M, 2418M, 2420M, 2422M, 2424M, 2426M, 2428M, 2430M, 2432M, 2434M, 2436M, 2438M, 2440M, 2442M, 2444M, 2446M, 2448M, 2450M, 2452M, 2454M, 2456M, 2458M, 2460M, 2462M, 2464M, 2466M, 2468M, 2470M, 2472M, 2474M, 2476M, 2478M, 2480M, 2482M, 2484M, 2486M, 2488M, 2490M, 2492M, 2494M, 2496M, 2498M, 2500M, 2502M, 2504M, 2506M, 2508M, 2510M, 2512M, 2514M, 2516M, 2518M, 2520M, 2522M, 2524M, 2526M, 2528M, 2530M, 2532M, 2534M, 2536M, 2538M, 2540M, 2542M, 2544M, 2546M, 2548M, 2550M, 2552M, 2554M, 2556M, 2558M, 2560M, 2562M, 2564M, 2566M, 2568M, 2570M, 2572M, 2574M, 2576M, 2578M, 2580M, 2582M, 2584M, 2586M, 2588M, 2590M, 2592M, 2594M, 2596M, 2598M, 2600M, 2602M, 2604M, 2606M, 2608M, 2610M, 2612M, 2614M, 2616M, 2618M, 2620M, 2622M, 2624M, 2626M, 2628M, 2630M, 2632M, 2634M, 2636M, 2638M, 2640M, 2642M, 2644M, 2646M, 2648M, 2650M, 2652M, 2654M, 2656M, 2658M, 2660M, 2662M, 2664M, 2666M, 2668M, 2670M, 2672M, 2674M, 2676M, 2678M, 2680M, 2682M, 2684M, 2686M, 2688M, 2690M, 2692M, 2694M, 2696M, 2698M, 2700M, 2702M, 2704M, 2706M, 2708M, 2710M, 2712M, 2714M, 2716M, 2718M, 2720M, 2722M, 2724M, 2726M, 2728M, 2730M, 2732M, 2734M, 2736M, 2738M, 2740M, 2742M, 2744M, 2746M, 2748M, 2750M, 2752M, 2754M, 2756M, 2758M, 2760M, 2762M, 2764M, 2766M, 2768M, 2770M, 2772M, 2774M, 2776M, 2778M, 2780M, 2782M, 2784M, 2786M, 2788M, 2790M, 2792M, 2794M, 2796M, 2798M, 2800M, 2802M, 2804M, 2806M, 2808M, 2810M, 2812M, 2814M, 2816M, 2818M, 2820M, 2822M, 2824M, 2826M, 2828M, 2830M, 2832M, 2834M, 2836M, 2838M, 2840M, 2842M, 2844M, 2846M, 2848M, 2850M, 2852M, 2854M, 2856M, 2858M, 2860M, 2862M, 2864M, 2866M, 2868M, 2870M, 2872M, 2874M, 2876M, 2878M, 2880M, 2882M, 2884M, 2886M, 2888M, 2890M, 2892M, 2894M, 2896M, 2898M, 2900M, 2902M, 2904M, 2906M, 2908M, 2910M, 2912M, 2914M, 2916M, 2918M, 2920M, 2922M, 2924M, 2926M, 2928M, 2930M, 2932M, 2934M, 2936M, 2938M, 2940M, 2942M, 2944M, 2946M, 2948M, 2950M, 2952M, 2954M, 2956M, 2958M, 2960M, 2962M, 2964M, 2966M, 2968M, 2970M, 2972M, 2974M, 2976M, 2978M, 2980M, 2982M, 2984M, 2986M, 2988M, 2990M, 2992M, 2994M, 2996M, 2998M, 3000M, 3002M, 3004M, 3006M, 3008M, 3010M, 3012M, 3014M, 3016M, 3018M, 3020M, 3022M, 3024M, 3026M, 3028M, 3030M, 3032M, 3034M, 3036M, 3038M, 3040M, 3042M, 3044M, 3046M, 3048M, 3050M, 3052M, 3054M, 3056M, 3058M, 3060M, 3062M, 3064M, 3066M, 3068M, 3070M,

Mode 24

Paul Wicks raises lower case characters and hires graphics.

This PPROGRAM gives the user true lower case characters on the screen, underlining, inverse text, limited user defined graphics capabilities, 64x160 pixel resolution and still allows all the Dragon's eight colours to be displayed on the screen at the same time. (all lines black).

The program is written in relocatable machine code, and occupies less than 16 of memory (although it uses the default value of four graphics pages for display).

The bus loader in listing 1 can be used to enter the data in listing 2. The addresses shown in listing 2 place the program at the very end of available RAM although if you wish to leave this memory free of other memory code programs then a lower start address can be used.

To save the program since it is in memory type CSAVE(M "filename", start address, start address + 8-0FF, start address (ENTER) or for the addresses given CSAVE(M "filename", &HCD0A0H, &HFF1A, &H10000000).

On turning the screen, it seems to display text on a black background (pseudo-video, pseudo-screen). BASIC commands, including PPRINT# and CLS# etc. all work as normal with the following additions:
 PPRINT# CHRS\$(27) seems to the normal text screen (not mode 24).
 PPRINT# CHRS\$(28) causes the text to be inverted.
 PPRINT# CHRS\$(29) switches the underline on and off.
 and PPRINT# CHRS\$(30) switches between the normal and green screen display.

These control codes are given in Table 2 and an example of how they work is given in listing 6. `PRINT#(1)` is used as normal to print lower case text except that lower case is now displayed as true lowercase and not as inverse text. To get inverse text use `PRINT#(0)` (see "text here"). CHRS(26) is...). An example of this type of graphics which can be obtained and then be set poems and chess circles in any position using BASIC is given in listing 5. To find which character is displayed at a particular point on the screen the functions in listing 4, GET#(1) (P1=PEEK#(H800+367*161) (P02-160))

can be used which returns the PEEKPOKE value (given in table 3) of the character at PEEK#1 at position N on the screen.

Finally, an example of how to combine power-relationships for use with MOORE24 is given in listing 3 which when used in conjunction with table 1 allows you to receive any of the lower case characters, (A-H) and (I-L) characters 123-99 123 in a 9x7 matrix.

United - Herkunft

```

10 "HEXLOADER
20 CLS
30 C=0:CH=$
40 INPUT;"START ADDRESS (HEX) ";PA$
50 A=VAL("&H"+$A$)
60 PRINT"ADDRESS ";HEX$(A)#
70 INPUT;"BYTE ";PS$
80 IF PS="X" THEN END
90 P=VAL("&H"+PS)
100 POKE A,P
110 CH=CH#D
120 C=C+1:IF C=8 GOSUB 140
130 A=A+1:GOTO 60
140 PRINT"CHECKSUM OF LAST 8 BYTES ";HEX$(CH)
150 C=0:CH=8:RETURN

```

Lesson 2 – Made an Offer Form

Listing 3 – User defined methods

```

10CLS
20LET A=96 'ASCII code of character to define.
30DATA 76,112,37,85,112,84,93
40 ' data to define character (see table 1).
50DEFIN 100 ' call user define routine.
60PRINT"This is the character":PRINT"you defined: ";CHR$(A)
70END
90'
100 'define character
110IF A<48 OR A>127 THEN PRINT"CHR$(A): OUT OF RANGE":STOP
115A=INT(A)
120AD=PEEK(160)*256+PEEK(161)+496+T*(A-96)
130FOR N=AD TO AD+6
140READ D
150POKE N,D
160NEXT D
170RETURN

```

Legend

```

10 DEF PNP(P)=PEEK($8600+352*INT(P/32)+8)
20 'replaces PEKE($8400+P)
30 'lower case characters return code of upper case equivalents
40 '
50 CLS
55 FOR I=9 TO 1
60 FOR N=32 TO 255
70 PRINT#N+I*324,CHR$(N);
80 PRINT#N,CHR$(N+1)PNP(N+I*324);
90 FOR E=1 TO 56:NEET
100 NEET
110 PRINTCHR$(255);
120 NEET

```

Listing 8 – Rearrangement of plotting colored circles in WCGF to

Listing 8 — Demonstration

```

10 CLS
20 US=CHR$(29)
30 IS=CHR$(28)
40 PRINT" Upper and lower case text."
50 PRINT
60 PRINT" ";US;"Underlining";IS
70 PRINT
80 PRINT" ";IS;"Inverse video";IS
90 PRINT
100 PRINT" Special characters: ";CHR$(196);
110 FOR N=128 TO 127:PRINTCHR$(N):NEXT
120 PRINT:PRINT
130 PRINT" And all 8 colours ",
140 FOR N=0 TO 7:PRINTCHR$(143+16*N):NEXT
150 PRINTCHR$(128)
160 PRINT

```

Table 1 — Pole Numbers for user-defined graphics

00000	96	96	96	96	96	96	96
00001	74	74	74	74	93	92	92
00010	124	105	126	0	126	105	124
00011	0	0	0	0	0	0	0
00100	65	84	84	84	84	84	84
00101	0	0	0	0	0	0	0
00110	0	0	0	115	0	0	0
00111	23	0	0	0	0	0	23
01000	126	104	124	0	124	104	126
01001	0	68	68	68	68	68	0
01010	99	99	116	88	88	99	99
01011	0	0	0	0	0	0	0
01100	112	122	122	122	122	112	112
01101	0	0	0	84	0	0	0
01110	126	94	106	120	106	0	126
01111	0	100	0	121	0	0	0
10000	74	76	76	76	76	76	76
10001	85	85	85	85	85	85	85
10010	0	112	112	112	112	112	0
10011	0	0	0	71	0	101	101
10100	0	102	75	0	75	0	0
10101	0	0	77	77	68	64	0
10110	0	0	0	0	0	0	0
10111	0	0	0	0	0	0	0
11000	0	0	0	149	108	0	0
11001	101	0	0	0	0	0	0
11010	0	0	0	0	0	0	0
11011	0	77	97	0	98	87	0
11100	91	0	0	0	0	0	91
11101	0	0	0	0	0	0	0
11110	86	0	117	68	0	100	86
11111	69	0	125	107	125	0	69

Table 2 — control codes

CHR\$(127)	-
Return to normal	
1608 mode 24)	text
screen	
CHR\$(28)	-
Inverse / true video	
toggle	
CHR\$(29)	-
Underline on/off	
toggle	
CHR\$(30)	-
Green / amber screen	
toggle	

Table 3 — code for PnP

CHR	CHR	normal	inverse
32		96	22
33		1	97
34		98	34
35		99	15
36		100	36
37		98	101
38		102	38
39		103	39
40		104	40
41		105	41
42		106	42
43		107	43
44		108	44
45		109	45
46		110	46
47		111	47
48		112	48
49	1	113	49

1000

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卷之三

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新編增補古今圖書集成

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THEORY AND PRACTICE IN THE FIELD OF POLYGRAPHY

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Quick CLS

A Daniel chip paragraphs the fast way with machine code.

THIS LITTLE programme is a simple machine code routine that can quickly clear any part of the low or high resolution screens or even the semi-graphics screen which can only be cleared very slowly in BASIC.

It is really a 'must' for all basic users and no knowledge of machine code is required except, as with all machine code programs, you must have it before you try it out as listing mistakes (they always are unavoidable) can result.

You do, however, need to know the memory addresses of the screen locations. To remind you, the low-resolution screen starts at 1024 and continues through 511 locations to 1535. The High-Res. screen starts at 1536 and uses an even-number of pages according to the mode (see Manzella, each page containing 1024 locations. The high-resolution 24 screen starts at 1000 and ends at 2079.

The following section gives a brief overview

demonstration of blocks of colour being placed on areas of high res. and low res. screens on which a much slower basic pattern has been drawn. The stereoscopic 3D screen is then cleared completely and a blue squiggle added to prove that it really is a stereograph not However I hope you will have noticed by now that the potential of this routine is enormous.

To integrate the first half of the following four own programmes you must give values to 2 variables — \$1, \$2 and \$3 in the REM line 30. \$1 is the start address of the area to be cleared and must not be less than 1024. \$2 is the end address of the area and \$3 is the clearing colour. Of course you must also set up the mode and screen for high res, graphics or poised the appropriate numbers (1 to 16 256) for screenspace.

several 3 and 255 will produce screen patterns but only 8 numbers will give uniform shades. These are 0 which produces the normal background, 128, the normal foreground, and 63 and 100 which give the two remaining colours. The other two numbers 160 and 192 produce a composite colour which can only be seen if the television set will pass as is usual with older sets. When using Page 160 (or if you wish to make patterns on less than 192) you must delete lines 160 and 192 as otherwise the value of 63 will be corrupted.

The machine code pokes are contained in a subroutine so the programme proper ends at line 50. You can go from here to wherever you want and to re-enter the clearing code with **CHR(0)**.

If your programme needs a lot of string space increase the 200 in line 10. If you are using other multi-line addresses, you may need to keep the 20000 figure in line 10 after the short address in line 60.

Expert's Arcade Arena

JUST a shortish column this month because of its accompaniment, yes, for those of you newly acquainted with the term, masterpiece. Here's a map of the opening section of *Coast Breaker*, together with some MUHLY Finslip advice. Visual and enhance chances of getting past that line that goes up and down. **ONLY THREE** MUHLYs need be taken out. They are marked on the Map as 1, 2, and 3 for pretty obvious reasons. One must be taken out to enable a 100% success rate on take-offs if one should decide trying to take out points and these. These are the guns that hinder you while trying to get past the up and down thing? Right, that's the diagram explained, nevertheless, who'd care to send me a map of the second stage? Plus a few tips on how to get these?

The series of the "Who is The Expert?" Competition this month is question #26 from Michaela from Woking in Surrey, who suggests that I am Infact Queen of Hassock. Nice try Andy, wrong, but a nice try and over plays number three, two shorted and one resisted. Finally, two pieces of totally

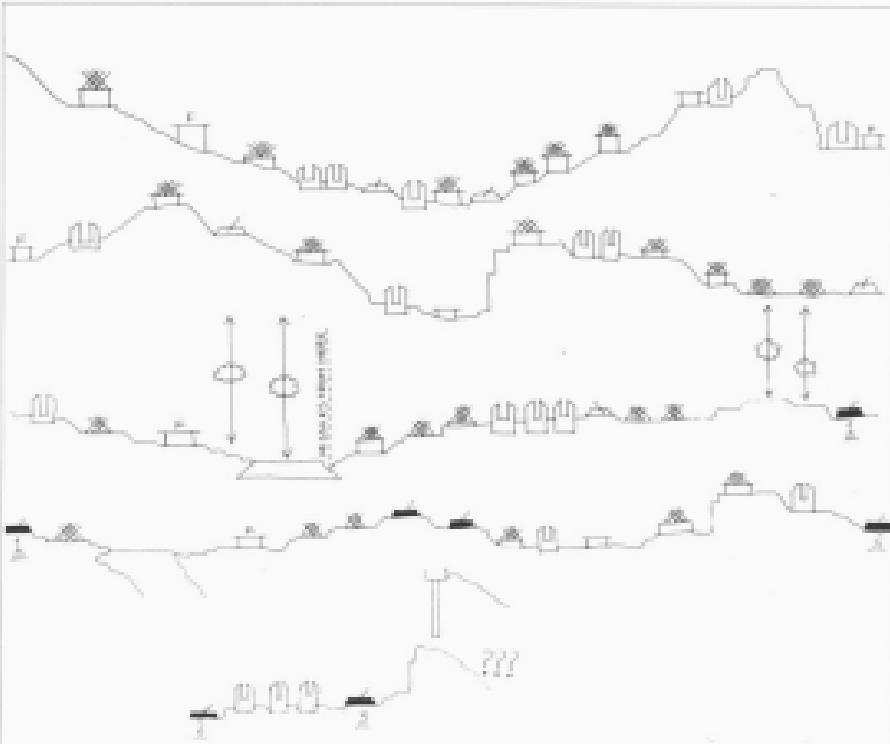
worthless but memorable pieces of advice. 1) Keep away from girls with spiky hair and 2) Shaving shouldn't be much harder. I think your residential Photo, which you should have received about a month ago, is a Photo of you, holding my own hair hand, of a clump of grass from my back garden. I know, words fail you, you've been wondering who sent you that Photo for about a month haven't you?

How then, some games need. Greenman are producing a game called Franklin about which I shall reveal no more but looks like being very good indeed, keep reading this column for review news. New releases from MicroProse soon looks like being a mixture of *Breakout* and *Crash*, with 25 screens. If that's a randomness choice (a-la *Conqueror*, *Abolition*, and some wicked screens involving aliens), this one looks like a mystery.

Your letters are still arriving, by the crate load, of yes, and by the way, this luminous pen craze is getting beyond a joke! This month I have received two letters in Luminous Pen from a Helen Massacre in

Write to 'The Expert' at Dragon User
100 Little Newport St, London WC2E 2PF
with all your projects tips and hints.

Granbury, and an Andrew Ridgeley in Wales (surely not the Andrew Ridgeley anyway Andrew May, Guy, Yellow Pen Ridgeley and Helen Hymenohamme (you should read her letter) — I'll send a copy to the first person who... no, whatever I'm thinking about) Pen Pen Mansions, I've informed Norman Teacos of your addresses and he'll be roused for your Conservative party membership testing very shortly. Help Help Help. Anything else I might add from one Peter Kershaw from Lancashire, "Dear Expert, please provide a map for at least the state of Costa Rica so that I think it would be a great help to many people" — And this is just one answer requested — And also have you got around to maps for Fantasy Flight and Discok's Kingdom yet? — These I have to you can read about it! — Please, can I help with that? And? — "I'm thinking about... — Finally, to apologize for our poor column and that I find it as the past of the magazine I turn to best. You should be allocated a lot more space! Do you write for any other magazines? — No! — "Please, keep up the great work!" Thank you and good night!



If you've got a technical question write to Brian Coggin. Please do not send a SAE as Brian cannot guarantee to answer individual inquiries.

Dragon Answers

Baud rate

I AM thinking of buying a monitor, but want to know if I would need a Dragon 32 as I only have a 32 at the moment. Could you explain baud rate and handshake bits when used with modems?

S. Scolloch
17 October Rot
Downham
Suffolk

RS232 modems talk to the computer via an RS232 serial interface which is built in to the 32 but not on the 32. Therefore, you either need to get a new Dragon 32 or buy one of the many RS232 cartridges available for power 32. Some company's such as Computerworx and Peacock will sell you an all in one package consisting of monitor, RS232 cartridge and software ready to go.

The baud rate is the speed at which data is sent down the serial interface. It's actually the number of times the signal line changes state in a second, but is often simply referred to as the number of bits sent per second.

Start bits are special bits sent before a byte of data to 'wake up' the computer at the other end and allow it to synchronise to the incoming data. Stop bits simply indicate gap between bytes of data and are sent after a byte of data.



matrix and so are likely to fail together. This means that the keyboard 'keys' are probably fine and there is simply a loose connection between keyboard and ribbon cable or ribbon cable and CPU board.

Alternatively, try contacting one of the repair services found on the pages of Dragon User for a quote on a new keyboard — you should be able to fit this yourself.

Music

I AM in the process of writing a game on my Dragon 32 and would like to know if it is possible to produce 'Interrupt Driver Music'. I know this is possible on the Commodore, Amstrad etc., but they have a different hardware.

Patricia
Michaelson
Blaenau
Gwent

Keyboard

I HAVE a Dragon 32 and my problem is that I can't type into the network. They say the CLEAR, ENTER and SHIFT keys can't tell the what's wrong and how to mend it?

S. Henry
19 Crescent
Morden
Croydon
Greater
London SW19 8AU

YOUR problem is almost certainly caused by a failing keyboard and, as stated by the CPU or other components. The keys you mentioned (plus the BREAK key which you'll probably find doesn't work either) are all on the same input line from the keyboard

THE DRAGON is certainly not famous for its tremendous sound capabilities, this is due to the fact that unlike almost every other decent home computer it does not contain a dedicated sound chip. Hence, when the Dragon wants to make a noise the 6809 must do all the work and cannot do anything else.

Therefore, it is not possible to produce true 'Interrupt' sound. However, one technique used in some games (like Microsoft's 'Crash Painter') is to have a routine which produces very short 'beeps' and call this routine from within the main game loop. You're limited to up tempo music but the results can be quite effective.

assembly rather than an assembly. The CC register is internal to the 6809 and is not 'mapped' in memory at any physical address. You can access the machine code by putting it onto the stack with a PSHC CC command and getting it back into the accumulator with a PULB A command, followed by STA to where it is memory.

Of course, the CC is not relevant to a disassembler anyway and would only be referred to by a 6809 simulator which would be rather difficult to run in BASIC.

Sorting

I AM/Writing a Mailing Address program for my Dragon with disc drive. It has many functions such as word search and list all addresses of same type etc. The problem I have is with sorting. The only way I know of sorting a file is to read it all into memory sort it and rewrite it elsewhere. This limits the number of records to around 200 before it's very slow/able to sort the file without having this limitation?

Robin Smart
49 Chaucer House
Chaucer Gardens
Sutton
Surrey

Sequel

THE OTHER day I was playing a game called 'The Ring of Darkness' on a friend's machine. He said he had had the game for a couple of years, now I am interested in buying the game but I can not find where to buy it. Could you tell me who produced the game and where I can get it from?

John Allerton
27 St. Marys Place
South
Lincs LN11 0EF

THE RING of Darkness was produced by Wintersoft who have since released the sequel called 'Return of the King'. Both can still be obtained from Wintersoft at 33 Uplands Park Road, Erdfield, Walsall, Walsall, priced at £8.99 each.

Stacked

I AM in the process of writing an assembler (in Basic) for my Dragon 32. The program is menu driven and I want a 'Stack' mode available, where the status of the flags register is shown.

The problem is where is the CC stored? My reference manual says it is stored on the stack, but any attempt to pull the CC will result in a different answer.

Marilyn Smith
43 Church Road
County
Oxfordshire

THE solution to your problem seems to be to use random access files rather than load all the data into memory at once. You'll need to use the PLOAD and PWRITE commands and decide on a fixed record length (10 characters should cover the longest name and address). Then a particular record 'N' in the file can be retrieved into A0 using:

PLOAD "FILENAME",A0
(N-1)10B,
P0R10B, B0

Most sort routines include lines to compare two strings and, if necessary, swap the two strings. All you need to do is read in the sorted records from disc before the comparison is made and write them back out if they are swapped over (you could use the SWAP command for this).



ROLL UP! roll up, get your free solution here today, guaranteed non-faltering and with no hints or solutions. As there's no adventure which causes more questions in my mailbox than Whistler's *Adventure Trail*, I've decided it's about time to give a solution to the game, as it's been out long enough now for this not to spoil the adventure too much—*using a solution*. I'll have to open everything forward, rather than backwards, but I suggest you read as far as the point you've reached in the adventure and see how to get past the problem there that's stumping you. If you read further and see something you didn't ought to, then you've only got yourself to blame.

Some readers have sent in solutions and part-solutions to this game, and thanks in particular to Richard Reed of Manchester for his notes, but the one that was most detailed, being a step-by-step guide, came from adventurer extraordinaire, Simon Hargrave of Gloucestershire. Thanks to Simon, then for the following, though note that you'll still need to map out the various areas.

In Baron White's City

Look at the bed and get everything, then hefty blue and red sheets (you'll need to make a rope) press button 10 to unlock door, wait till the sheet is going away then open the door and get everything to the east. Take the top-to-bottom red and gold door. Get the sleeping pills from the table and go to the shower room. LOGIC TAG and TUKE TAG. Wait until the red door to arrive and check-out. Open the blue key-cabinet. Leave the door, go up stairs, unlock the door and go down to ground level. Go to the menu platforms (don't go into the audience area, instead), wait for the door and board it when the doors open. Get the camera from the photo gallery. Only take the food from the red door (you'll need to eat). Go to the anti-room and put the sleeping pills in the cameraman's coffee. Get the white key card and the cup from the cameraman and unlock the door. Get the peach mask, sticky tape and soldering iron. Go back to the silent area and wait the mask to enter the unlock. When outside, drop all but the mask, overall, white ID tag and white key card, though you'll need to return for some items later. Go to Baron White's fort.

To Enter A Building

To do this you need to be exactly at the building, i.e. standing so that you cannot

see it no matter which way you look, and then type ENTER.

Catering

At any time when you need to eat, enter a city and get the food from the toad direct simply by taking it.

Hightail

When night falls, enter the nearest building and consume strength (big way). Night falls every nearly places.

In Baron White's Fort

Give the white key card to Baron Reed, take the red ID tag and go to Baron Reed's fort.

In Baron Reed's Larder

Get the brown ID tag from Baron Reed's fort, then go to the shelf which contains the main. Mithrilite night-eyes could be using the camera, take his space and go through the door. Dig for the red centre-one. Take the red ID tag and he will give you the green ID tag. Go to Baroness Green's fort.

In Baroness Green's Larder

Go to the fort and get the inner tube from the wheel. Repair it with the tape and close the board by pressing the buttons in order blue-red-green-red-blue. Take the sheet of music and give it to the music box, whereupon he will play the musical notes which unlock the door. Enter the room, taking the live location. Do what the sign on the wall says and type SPILL.

Congratulations!

At least this is what you should now be told, along with the information that the adventure will be continued in Part II, *The Usurper of Power*. You remember Part Two was the one that was going to be released by Easter... Easter 1990, that is. Never mind, I'm sure it will be with us eventually, and very welcome to, judging by the numbers of people who seem to have bought *Adventure Trail*.

The above solution, incidentally, isn't the only way of solving the game, as obviously there are a few things that can be done in different orders, so don't worry in and say that your solution is better! On the other hand, if you can explain where the broken leg is, which a reader asked about in the April issue of *Dragon User*, but which Simon 'The Silver' Hargrave couldn't find anywhere, then by all means write in and tell us.

Simon is contactable at Chiverton Hill Farm, Chiverton, Glos. GL17 5RH, and he also has a ton of information to add to last month's details about *Madness* and the *Minotaur*, where he's trying to get his score up from 216 to the maximum 240. He advises against using the save routine as this only saves your current location and not your character status, as well as apparently rendering the 'atkicon' ineffective against the hydra.

And the B&P—what's all that?

Adding Anagrams

Gordon Lee takes a number of letters and sums them up.

IN THE letters section of the July issue of "Dragon User", reader Denis O'Malley, who describes himself as an avid fan of the competition page (Puzzles, Denali), asked for further details regarding the conventions needed to be used in solving the competition problems.

From time to time on the competition page, general terms on problem solving — either generally unrelated to specific problems — have been given. Readers with their numbers will be able to check these out; readers without — tough luck!

Some hints on problem solving are given in the January '84 issue, and pointers relating to some specific competition questions were outlined in the February '84 and October '84 issues. The January competition pages contained information on computations involving large numbers of digits, the November '84 page had some digital algorithms, while problem solving by the use of algorithms was covered in the March '84 Dragon User.

The Dragon, in common with other computers, has its own specific peculiarities which can result in errors cropping up if precautions are not taken during programming. In May '84, exponential notation was mentioned, while problems of mathematical accuracy, and an unexpected feature of the Dragon's SINTH command were outlined in the September '84 issue. Some general comments on the pitfalls associated with the use of the trigonometric and random number functions appeared in the January '85 and June '85 issues respectively.

Mr O'Malley's term "correct method" is a laugher but to crack, since there may well be a number of different ways of reaching the final answer, and, as long as that answer is the correct one, which is the correct method? In the recent competition, the program listings included by competitors ranged themselves on less than half a page of code (frames), to a six-foot long print-out at the other! He doesn't both were "correct" in that they produced the required answer, but the one was certainly more concise than the other! Perhaps, as a rule of thumb, a program which provides the correct answer, and in which the total program length and running time is the shortest, should be regarded as the best.

Admittedly this is really a matter of training your computer and being aware of any short cuts which can speed up running times without affecting accuracy. This is best gained by experience, and as this reader I would recommend attempting the monthly competition which appears in Dragon User's sister paper, *Popular Computing Weekly*. The solutions, and a scoring key are usually given, so even if readers do not actually submit solutions, they can

always use these problems as tests of technique.

For readers who wish to dive more deeply into this field, I would recommend *Adventures with your Computer* by Leonard Peacock and David Nelson (Prism Books). And now to this month's competition.

Professor Otto Hax was dining with one of his colleagues, Professor Bumble, the famous thesauriologist, and the mathematician Dr Brains.

"I remember you saying," mused Hax to Bumble, "that you once remained that an anagram of Elgar was vagar, an apt description of much of that composer's work. Well, I've found some more anagrams and have constructed them into an aphoristic puzzle."

He passed a slip of paper to Dr Brains which was written:

EL GAB
RE DAL
LARGE

Prize

In keeping with the high intellectual tone set by our competitions, this month's prizewinners will each receive a copy of *Boulder Dash*, by Andy Computer Games, of whom our editor said: "It's really unfair of you to send me a game ... that spends more time playing it than it doesn't round it reviewing it," and, further, "the same ... Oh god, the same!"

So get calculating for one of those twenty boulder busters. One clue: the answer is not LULLO.

Rules

Send us your answer, accompanied by a photocopy, or a handwritten copy, of the program you used to calculate it. No answers, please. Please mark the envelope **IC-1000 COMPETITION** to ensure it arrives at the right address, and remember to add all the relevant to include your name and address — if you must put it in the printed address upper case!

Because you're all so brilliant, we need a dazzlingly thrilling computer layout out the final answer. This month's puzzle is: "Look out for falling rocks, but don't worry ... Compete! Compete! Anyway you like - we might like it too."

July Winners

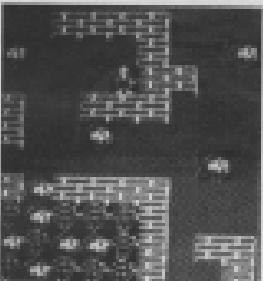
All who submit entries will receive a copy of *Colourline* (by Myon Create), *By Inivative Software*; *Simon Autrey* of Shrewsbury, A. Muzzel of Clevedon, Michael Graham of Mango, D. J. James of Sandbach, J. Leyland of Grantham, M. J. Mcintosh of Kingskerswell, Mike Hobbs of Shifnal, Nils Lindgren of Sweden, Hubert Margraff of

LADIE'S GLAIRE

This is a simple addition sum, and what you have to do is to find suitable values for the letters E, I, O, A, and R, such that the result is a six-digit sum, represented by the row of stars. However, each of the digits in this sum must be found in the concatenation above, so that they can all be re-substituted for letters to obtain a six-letter sequence, it need not represent an actual word, so you could have, for example, sequences such as LADIE'S, or even GERALD.

There are many answers possible, but can you find the one that I am thinking of if I tell you that the two examples given above are as far away as you can get, in that neither of these has a single letter in its correct place (the first letter cannot be an 'I' or an 'O', and so on).

Professor Bumble looked for help to Dr Brains. Can you help?



Boulder Dash

Leamington Spa, Graham Smith of Bristol, Christopher Jones of Malta, E. C. Hasted of East, Jonathan Harrop of Winterton, G. R. Barber of Sutton Coldfield, M. Chavis of Pontypool, Justin Hayes of Hales, P. J. Williams of Yerfield, D. J. Gray of Cleveland, John A. Pycock of Stock-on-Forest, and Paul Staines of Liverpool. Favourite saying this month: "The Dragon takes a giant step — the giant falls through a gap in the stairs." Solution

Solution

The solution to the problem if you follow all the instructions correctly is: the first grey star/your answer is "West edge, 600 stars from the north west corner", or, of course, "West edge, 440 stars from the south west corner" — depending which way you counted.

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An extended BASIC for the Dragon 64

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- Takes NO memory from BASIC
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- Can load in extra UTILITIES from disk

HELP UTILITY

Extensions to BASIC 42 includes:

- Change CUP/SPCR character
- SCROLL disable
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- 3.5K print buffer
- TTY/ST program turns Dragon into typewriter

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Modifications for CUMANA DOS	£9.99

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